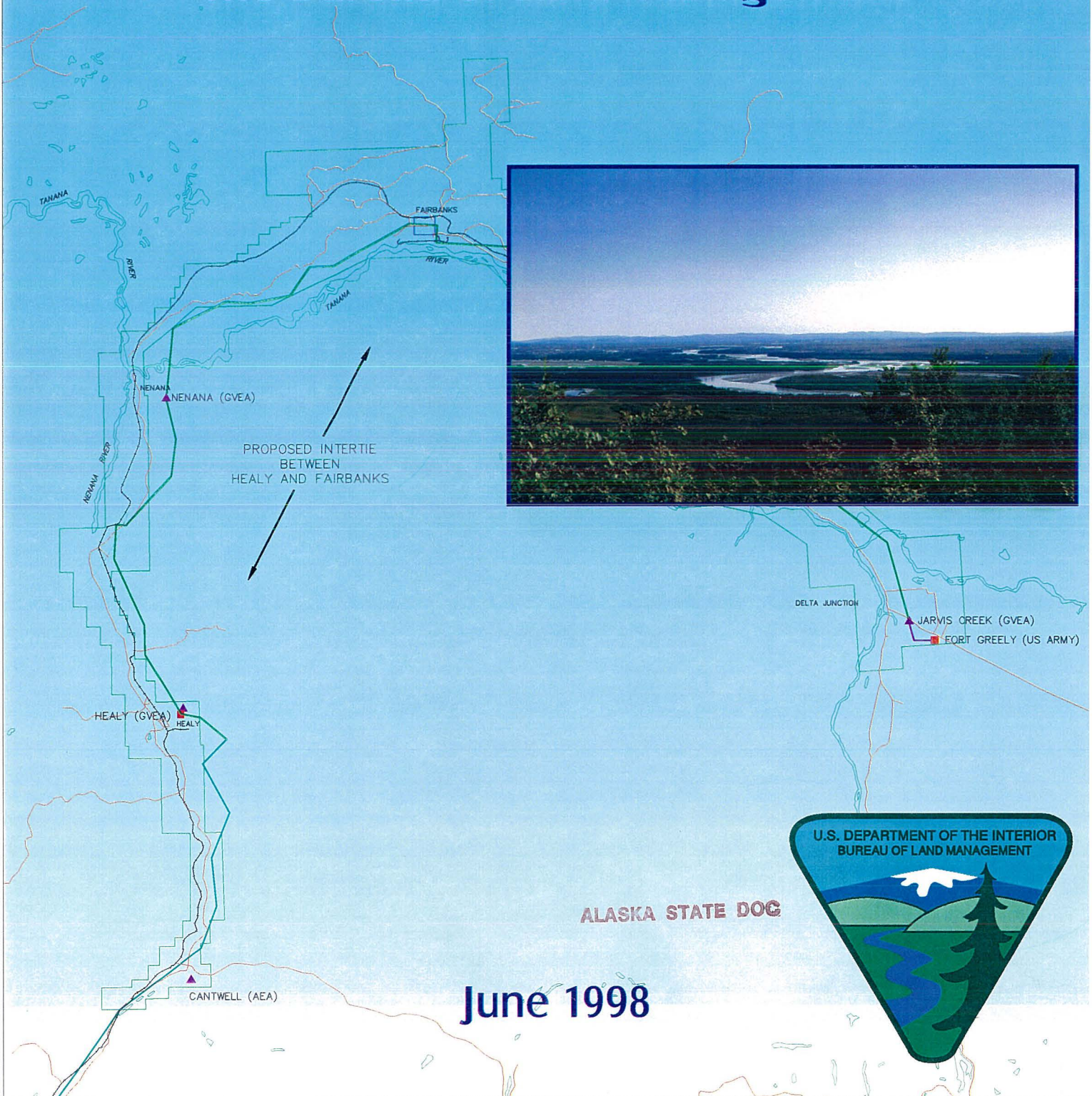


Northern Intertie Project Final Environmental Impact Statement The Bureau of Land Management



ALASKA STATE DOG

June 1998





United States Department of the Interior
BUREAU OF LAND MANAGEMENT
ALASKA STATE OFFICE
222 W. 7th Avenue, #13
Anchorage, Alaska 9951

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1998

IN REPLY REFER TO:
1793 (910)

3 3755 000 30332 1

Dear Reader:

The Bureau of Land Management (BLM) is pleased to present you with a copy of the Final Environmental Impact Statement (FEIS) for the Golden Valley Electric Association Northern Intertie Project. A thirty-day review period will begin on the day the Environmental Protection Agency (EPA) publishes the Notice of Availability in the Federal Register. The end of the review period will be July 6, 1998, or 30 days after the E.P.A. publishes the Notice of Availability, whichever is later.

The BLM received over 600 comments from the public during the review period for the Draft EIS. Some were from oral testimony at public hearings, and others were written comments. The FEIS contains the substantive comments received and the BLM response to the comments.

The BLM's internal review of the DEIS, along with comments from the public, pointed to some necessary changes. These changes are contained in the FEIS.

One change in particular is a change in the preferred alternative. The preferred alternative identified in the Draft Environmental Impact Statement (DEIS) was the Rex-South route with Option B (Chicken Creek Bypass). The preferred alternative in the FEIS is the Rex-South route without Option B.

The final decision on the route will be explained in the BLM's Record of Decision (ROD). The BLM anticipates completion of the ROD in late July 1998, stating the BLM's decision regarding the Northern Intertie Project. The ROD will show the alternatives

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considered and identify the environmentally preferred alternative(s). Additionally, the ROD will identify mitigation measures to be used for the project and present a monitoring and enforcement plan for project mitigation.

Anyone desiring to provide input on this FEIS should provide their comments through the BLM-Northern Field Office Home Page (<http://aurora.ak.blm.gov>) or in writing to:

GVEA Northern Intertie Project Leader
Bureau of Land Management
Northern Field Office
1150 University Avenue
Fairbanks, AK 99709-3899

All comments must be received no later than 30 days after EPA's notice in the Federal Register.

My thanks to everyone who has provided comments to the BLM during this process. Your comments assisted the BLM in identifying the important issues for the EIS. I also thank the other agencies that have participated in the EIS process.

If you have questions about this document or the process, please contact Gary Foreman at (907) 474-2339 or 1-800-437-7021.

Sincerely,



Tom Allen
State Director, Alaska

**GVEA Northern Intertie
Abbreviated Final Environmental Impact Statement
June 1998**

Lead Agency: United States Department of the Interior
Bureau of Land Management
Northern Field Office
1150 University Avenue
Fairbanks, Alaska 99709-3899

Contact: Gary Foreman, Project Leader
(907) 474-2339 or 1-800-437-7021

Cooperating Agencies: U.S. Army Alaska (USARAK)
U.S. Department of Agriculture, Rural Utilities Service

Comments Must be Received by: July 6, 1998, or 30 days after publication in the Federal Register of the U.S. Environmental Protection Agency's Notice of Availability, whichever is later.

This Abbreviated Final Environmental Impact Statement (FEIS) has been prepared in response to Golden Valley Electric Association's (GVEA) proposal to construct a 230 kilovolt transmission line (the Northern Intertie) from Healy to Fairbanks. The Bureau of Land Management (BLM) must decide whether to issue a 30-year renewable right-of-way (ROW) grant to construct, operate, and maintain the transmission line on federal lands. The U.S. Department of the Army serves as the trustee of public domain lands withdrawn for military purposes and must sign a letter of non-objection before the BLM can issue the ROW permit. The Rural Utilities Service is responsible for determining whether to partially finance the construction of the proposed Northern Intertie. The FEIS examined seven route alternatives and the No Action alternative. Impacts associated with the proposed transmission line tend to fall into two distinct categories: those caused by crossing through the central portion of the Tanana Flats and those associated with paralleling the Parks Highway. Impacts on wildlife, habitat, and related issues (such as recreation and fire management) are expected to increase as the route moves farther into the Tanana Flats. Impacts on land use and socioeconomics tend to increase closer to the Parks Highway. Based on the environmental analysis, information contained in this FEIS, and public comments received during the scoping process and review of the Draft EIS, the *Rex/South Route* is the Preferred Alternative.

TABLE OF CONTENTS

Section	Title	Page
1.0	INTRODUCTION	1-1
1.1	FEDERAL NOTICE OF INTENT	1-2
1.2	SCOPING	1-2
1.3	DRAFT EIS	1-3
1.4	FINAL EIS	1-3
1.5	RECORD OF DECISION	1-3
2.0	PROJECT SUMMARY	2-1
2.1	PURPOSE AND NEED	2-1
2.2	ALTERNATIVES ANALYZED	2-2
2.3	DESIGN FEATURES COMMON TO ALL ALTERNATIVES	2-5
2.3.1	Access	2-5
2.3.2	ROW Width and Clearing	2-6
2.3.3	Aviation	2-6
2.3.4	Wildlife	2-7
2.3.5	Visual	2-8
2.3.6	Fire Management	2-8
2.4	EFFECTS OF ALTERNATIVES	2-8
2.5	PREFERRED ALTERNATIVE	2-13
3.0	ERRATA SHEET	3-1
4.0	REVIEW AND ANALYSIS OF PUBLIC COMMENTS	4-1
4.1	INTRODUCTION	4-1
4.2	COMMENT SUMMARY	4-1
4.3	SUBSTANTIVE COMMENTS	4-3
4.3.1	NEPA Process	4-3
4.3.2	Purpose and Need	4-9
4.3.3	Alternative Analysis	4-13
4.3.4	Preferred Alternative	4-17
4.3.5	Access	4-18
4.3.6	Biological Resources	4-19
4.3.7	Land Use	4-30
4.3.8	Visual Resources	4-34
4.3.9	Recreational Resources	4-37
4.3.10	Tourism	4-38
4.3.11	Socioeconomic/Benefit-Cost Analysis	4-38
4.3.12	Aviation	4-43

TABLE OF CONTENTS (Cont.)

Section	Title	Page
4.3.13	Fire Management	4-44
4.3.14	Other	4-46

TABLES

Table 1	Key Issues
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FIGURES

Figure 1	Seven Route Alternatives and No Action Alternative
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ACRONYMS AND ABBREVIATIONS

ADNR	Alaska Department of Natural Resources
AFS	Alaska Fire Service
ANCSA	Alaska Native Claims Settlement Act
Army	U.S. Department of the Army
ARRC	Alaska Railroad Corporation
BESS	Battery Energy Storage Systems
BLM	Bureau of Land Management
DEIS	Draft Environmental Impact Statement
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
FEIS	Final Environmental Impact Statement
FNSB	Fairbanks North Star Borough
FONSI	Finding of No Significant Impact
GVEA	Golden Valley Electric Association
kV	kilovolt
kWh	kilowatt hour
MOAs	Military Operations Areas
NEPA	National Environmental Policy Act
NOI	Notice of Intent
ROD	Record of Decision
ROW	right-of-way
RUS	Rural Utilities Service
TLO	Trust Land Office
UCM	Usibelli Coal Mine
USFWS	U.S. Fish and Wildlife Service

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1.0 INTRODUCTION

This Abbreviated Final Environmental Impact Statement (FEIS) provides a summary of Golden Valley Electric Association's (GVEA) proposal to construct a 230 kilovolt (kV) transmission line (the Northern Intertie) from Healy to Fairbanks, and a analysis of comments received on the Draft Environmental Impact Statement (DEIS). An abbreviated FEIS has been prepared because modifications to the DEIS did not include substantial changes to the proposed action or to the environmental analysis. If changes to comments are minor and result in factual corrections or do not warrant a further response, then only the comments, responses, and changes, and not the final statement, need be circulated [40 CFR 1502.19 and 1503.4(c)]. This FEIS must be used as a companion document to the DEIS (dated December 1997), which contains the full text of the affected environment, environmental analysis, and appendices.

The environmental review for the Northern Intertie Project is being performed under National Environmental Policy Act (NEPA) regulations adopted by the Bureau of Land Management (BLM). The BLM is the lead federal agency and the U.S. Department of the Army (Army) and the Rural Utilities Service (RUS) are cooperating agencies overseeing the preparation of this Environmental Impact Statement (EIS). The BLM must decide whether to issue a 30-year renewable right-of-way (ROW) grant to construct, operate, and maintain a power transmission line on: federal lands, including military lands; state selected lands under the statehood act; Native selected lands under the Alaska Native Claims Settlement Act (ANCSA); non-certificated Native allotments under the Alaska Native Allotment Act of 1906; and Mental Health Trust lands. The Army serves as the trustee of public domain lands withdrawn for military purposes and must sign a letter of non-objection before the BLM may issue a ROW permit across Army lands. The RUS is responsible for determining whether to partially finance construction of the proposed project in accordance with the provisions of the Rural Electrification Act of 1936, as amended.

NEPA was designed to provide federal agencies and the public with an objective understanding of the environmental consequences associated with a proposed project. NEPA requires an evaluation of available alternatives to meet the needs of the project, and identification of mitigation measures to minimize adverse impacts. The NEPA process is intended to coordinate federal, state, and local government, and public reviews into a complete and inclusive environmental review process so informed decisions can be made.

The environmental review process for the Northern Intertie began in 1994. A macro-corridor study and Project Alternative Report was prepared under RUS guidelines and issued for public review. Environmental studies and agency meetings were conducted in 1995 to develop a draft Environmental Assessment (EA). The EA and a draft Finding of No Significant Impact (FONSI) were issued in January 1997 for public review. As a result of public and agency concerns regarding the findings of the EA, it was determined that an EIS was required for the Northern

Intertie Project. The EIS process undertaken in accordance with NEPA for the Northern Intertie Project is described below.

1.1 FEDERAL NOTICE OF INTENT

A federal Notice of Intent (NOI) to prepare an EIS must be published in the Federal Register and a local newspaper in the project area. The NOI alerts the public that a federal action is being proposed and that the environmental review process is beginning. The BLM published its NOI in the Federal Register and the Fairbanks Daily News Miner on May 27, 1997.

1.2 SCOPING

The public scoping period officially began on May 27, 1997, with the publication of the NOI and ended on July 11, 1997. The BLM held four public scoping meetings from June 23 to June 26, 1997, in Fairbanks, Healy, Anderson, and Nenana. The public provided comments regarding the possible effects of the project, assisting the BLM in identifying potential routes. Concerns identified throughout the EA process and during the DEIS scoping period included:

- Increased access to the Tanana Flats, which could lead to habitat loss, changes in recreational experiences, and increased hunting pressures.
- Aviation Safety, especially where the line crosses major rivers.
- Impacts to private property owners.
- Visual impacts from the presence of the line and associated impacts to recreation users, tourists, and residents.
- Impacts to wildlife, including the potential for Trumpeter Swan and Sandhill Crane collisions with the transmission line.
- Loss of wetland habitat.
- Amount of vegetation clearing within the ROW.
- Impacts to fire management.

Additional public meetings were held from August 19 through 21, 1997, in Healy, Nenana, and Fairbanks to obtain public input and present screening criteria used to determine the following:

- Alternatives to be carried forward in the EIS.
- Alternatives to be eliminated from consideration.

- New Alternatives for consideration.
- Refinements to existing Alternatives.

1.3 DRAFT EIS

The DEIS evaluated: the purpose and need for the proposed action; a range of reasonable alternatives; the affected environment; the potential environmental, social, and economic impacts associated with the proposed action and alternatives; and appropriate mitigation measures to minimize or avoid impacts. The DEIS was designed to provide sufficient information and analysis to determine the magnitude of these impacts and identify ways to minimize or mitigate any potential harm to the environment based on the best information available.

Following the publication of the DEIS, a 60-day public comment period was required under BLM NEPA guidelines, which included a 45-day comment period from the date the U.S. Environmental Protection Agency (EPA) publishes the Notice of Availability in the Federal Register. The Northern Intertie DEIS public review period was a total of 72 days. Public hearings were held in Fairbanks, Healy, Anderson, and Nenana from February 9 through February 12, 1998, to allow the public the opportunity to comment on the DEIS. Written comments on the DEIS were accepted through March 5, 1998, for inclusion in the FEIS. Additional information on the public process can be found in Section 4.0, Review and Analysis of Public Comments.

1.4 FINAL EIS

An abbreviated FEIS has been prepared because modifications to the DEIS did not include substantial changes to the alternatives or analysis. The FEIS includes: Chapter 1 - Introduction, Chapter 2 - Project Summary, Chapter 3 - Errata Sheet (identifying factual corrections to the DEIS), and Chapter 4 - Review and Analysis of Public Comments. Based on new information obtained during the public review period, several map figures have been updated and are included with the FEIS.

There is a 30-day public review period following acceptance of the FEIS by the EPA and publication of the Notice of Availability in the Federal Register.

1.5 RECORD OF DECISION

Once the public review period of the FEIS has been completed and the comments received during this period have been reviewed, the BLM will prepare a Record of Decision (ROD). The ROD includes: 1) the BLM's decision regarding the proposed project; 2) the alternatives that were considered in the decision-making process and identification of the environmentally preferred alternatives; 3) a statement about whether all practicable means to avoid or minimize

environmental harm have been adopted for the preferred alternative and, if not, why they were not; 4) a monitoring and enforcement plan which implements project mitigation; and 5) those mitigating measures developed in the EIS that will be carried forward into the ROW grant. The ROD will also explain why any mitigation was not carried forward.

2.0 PROJECT SUMMARY

Presented below is a summary of the proposed project. A full description of the project can be found in the DEIS, dated December 1997.

2.1 PURPOSE AND NEED

The purpose of the proposed Northern Intertie includes the goals described below.

Meet Increasing Demands for Power: Since construction of the existing intertie, 30 years ago, GVEA's customers have more than tripled. In the next 4 years, GVEA's peak demand requirements are projected to increase by 55 percent. The existing line from Healy to Fairbanks currently operates at or near capacity to meet the current demand. Completion of the Healy Clean Coal Project, and continued access to electrical power in southcentral Alaska, now means that GVEA can provide more power to Fairbanks. However, without the second intertie, GVEA will be unable to deliver this power.

Improve the Reliability of Electric Service and Provide a Second Line from Healy to Fairbanks: Healy has access to three power sources: 1) the power delivered from the Bradley Lake hydroelectric plant and the gas-fired Anchorage generation units to the Healy intertie, 2) the Healy Clean Coal Project, and 3) GVEA's Healy generation facility. If the intertie between Anchorage and Healy fails, 70 megawatts of power would not be delivered to Healy and, in turn, Fairbanks. However, Healy would still have two other power sources to supply electricity to Fairbanks (Healy Clean Coal and GVEA's Healy facility). If the intertie between Healy and Fairbanks should fail, all three Healy power sources are isolated and power cannot be delivered to Fairbanks. Under this scenario, Fairbanks would likely experience a temporary blackout until GVEA could start all of its local generation facilities. Should a single generation unit in Fairbanks fail, the effects of the intertie outage could be greater, potentially creating life and safety risks to Fairbanks residents, depending on the time of year and length of the outage. On September 25, 1997, GVEA had to respond to a failure of the existing intertie. All Fairbanks generation units were started and operated at capacity to provide power to GVEA members. If any of the generators had been unavailable due to maintenance or failures, power to certain areas of Fairbanks would have had to been temporarily turned off, and then shifted to another area (a rolling black out).

Increase Access to Economical Energy: Existing generation facilities in southcentral Alaska supply energy that is produced at a lower cost than energy generated from the oil-fired units in Fairbanks. As a result, GVEA has contracts to purchase a set amount of energy, whether they use it or not. The existing intertie does not have enough capacity to transfer all of the power GVEA has purchased. In addition, GVEA cannot make other economical power purchases from southcentral Alaska because of the capacity limitations. However, the existing line does

not have the capacity to transmit the generated power from Anchorage and the power produced at Healy. With the addition of the Healy Clean Coal Plant, there is not enough transmission capacity into the Fairbanks area. The Northern Intertie will increase access to this existing, lower-priced energy by increasing the transfer capacity between Healy and Fairbanks.

2.2 ALTERNATIVES ANALYZED

Alternative routes examined generally follow the Parks Highway corridor or cross the Tanana Flats to the east. Should one of the alternatives along the Parks Highway corridor be selected, an additional 20 to 25 miles of new line will be constructed to bring power from the west side of Fairbanks to the load center in south Fairbanks. Upgrading the Gold Hill and North Pole Substations and constructing a new substation at Fort Knox would also be necessary. The project includes modifying the existing Healy Substation and constructing a new substation (Wilson) and 40 megawatt Battery Energy Storage System (BESS) near Van Horn Road and South Cushman Street. The seven route alternatives (Figure 1) and the No Action alternative are briefly described below.

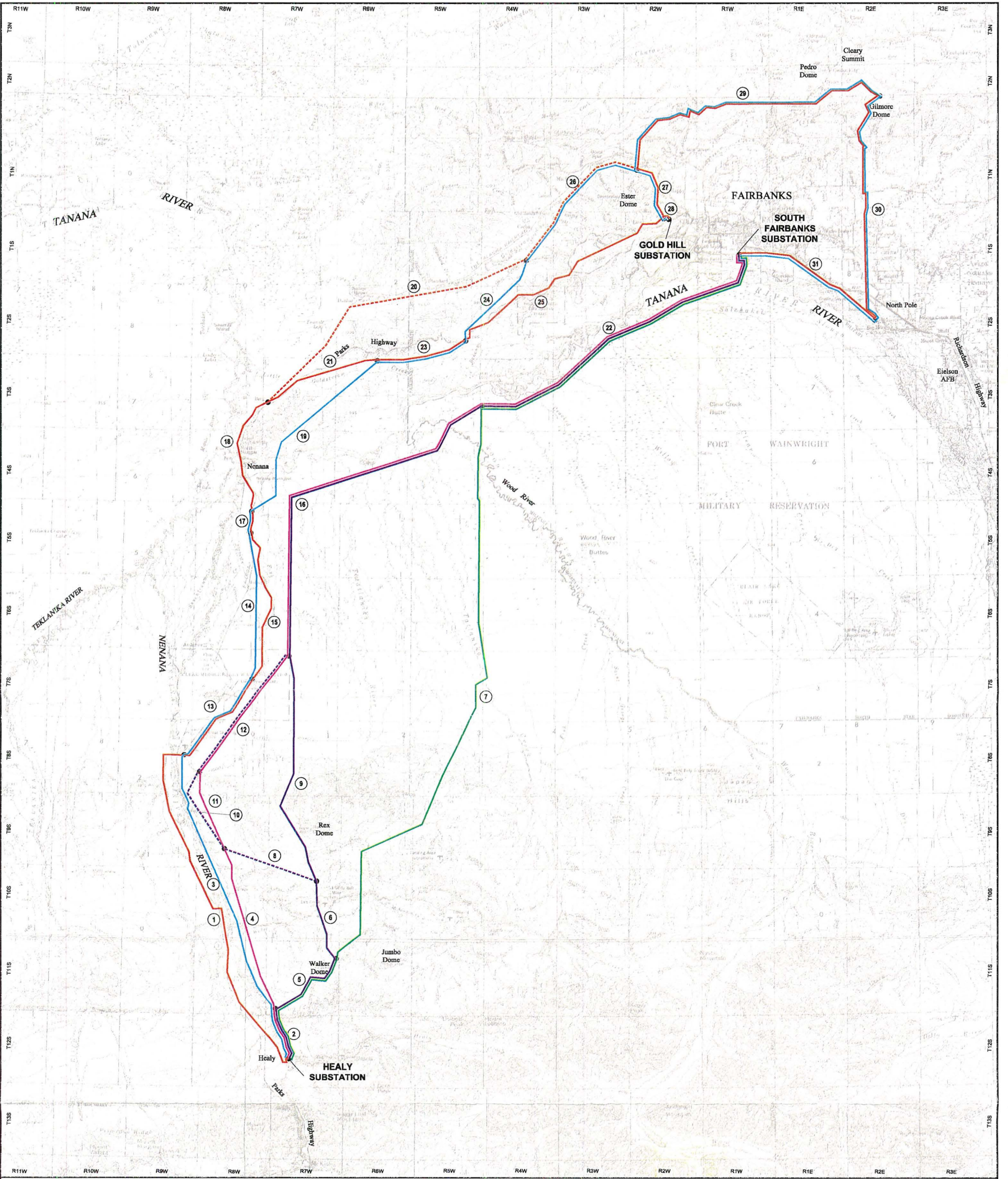
No Action: This alternative assumes that the Northern Intertie is not constructed.

Old Intertie Route: This route follows the west side of the existing intertie along the Parks Highway into the Gold Hill Substation in west Fairbanks, where an existing line north/northeast to the Fort Knox Gold Mine Substation is used. A new ROW would be constructed to Chena Hot Springs road, and would then follow along an existing 69 kV line to the North Pole Substation. From the North Pole Substation, an existing line into south Fairbanks is used.

Option A - Railroad ROW: This is an optional refinement to the *Old Intertie Route* and replaces the section through the Gold Stream Valley and Tanana Valley State Forest. *Option A* follows the railroad ROW north of Nenana to Ester Dome.

North Route: This route follows the Nenana River north, past the east side of Clear Air Force Station, and across the Tanana River. It continues easterly around the north side of Ester Dome and turns south to the Gold Hill Substation, where the existing line north/northeast to the Fort Knox Gold Mine Substation is used. It then heads south to Chena Hot Springs Road, where it follows along an existing 69 kV line to the North Pole Substation. From the North Pole Substation, an existing line into south Fairbanks is used.

South Route: This route runs east of the Nenana River, through Ferry, and northwest to the Clear Air Force Station area. It parallels the south side of the Tanana River until it crosses Goose Island into south Fairbanks.



Segment Cross Reference:

- Old Intertie Route: 1 13 15 17 18 21 23 25 27 28 29 30 31
- Option A: Refinement to Old Intertie (i.e., Railroad ROW) 1 13 15 17 18 20 26 27 28 29 30 31
- North Route: 2 3 13 14 17 19 23 24 26 27 28 29 30 31
- South Route: 2 4 11 12 16 22
- Rex/South Route: 2 5 6 8 16 22
- Option B: Refinement to Rex/South (i.e., Chicken Cr. Bypass) 2 5 6 8 10 12 16 22
- Tatlanika Route: 2 5 7 22



Rex/South Route: This route runs northeast of Walker Dome and past the eastern boundary of Clear Air Force Station. It parallels the south side of the Tanana River until it crosses at Goose Island into south Fairbanks.

Chicken Creek By-Pass: This is an optional alignment for the *Rex/South Route* and replaces the section that runs west of Rex Dome. This refinement turns to the northwest and passes between Chicken and Windy Creeks. It reconnects to the *Rex/South Route* near Clear Air Force Station.

Tatlanika Route: This route heads northeast to Walker Dome, past the east side of Rex Dome and onto the Wood River. It follows along the south side of the Tanana River, crossing into south Fairbanks at Goose Island.

2.3 DESIGN FEATURES COMMON TO ALL ALTERNATIVES

Key features of the proposed project are summarized below.

2.3.1 Access

- Existing roads and trails will be used to access the ROW for construction of the transmission line, wherever possible. Depending on the selected alternative, some of the likely access points for construction would be the Parks Highway, the Rex Trail, and the logging road from Nenana. Any new access roads would likely be limited to the Alaska Range foothills and would require the approval of the appropriate land manager.
- No construction camps will be established along the ROW. Construction crews will be transported to work sites daily using appropriate vehicles. To minimize potential environmental impacts during construction, vehicle trips along the ROW will be kept to a minimum. To the extent practicable, construction equipment will be left within the project area rather than driven out on a daily basis.
- In areas where soils and vegetation are particularly sensitive to disturbance, existing access roads will not be widened or otherwise upgraded for construction and maintenance, except where repairs are necessary to make existing roads passable. If authorization for existing access does not exist, then appropriate permits will be required.
- To minimize disturbance to vegetation, drainage patterns, stream channels, and stream banks, new access will be built to the extent practicable at right angles to streams and washes. Crossings of incised streams will be done in a manner that avoids disturbance or sloughing of stream banks. Temporary bridges (structural, snow, or ice) will be employed where bank damage cannot be avoided. Crossing locations will be selected

to use gravel bars to the extent practicable and avoid unstable or cut banks and known fish spawning and rearing habitat.

- No permanent access will be constructed in the Tanana Flats. Winter access for construction will occur only after there is a minimum of 12 inches of snow on the ground and a 12-inch depth of freeze. There will be no blading or disturbance of the vegetation mat.
- Stream crossings on the Tanana Flats will be accomplished by constructing an ice bridge across the stream or by placing a temporary bridge, such as an open truck bed, across the stream and removing it after construction.

2.3.2 ROW Width and Clearing

- In general, the proposed ROW for the transmission line will be 150 feet wide. It will probably be narrower near the Usibelli Coal Mine (UCM) in Healy and in the Fairbanks area, and it may be as wide as 300 feet in areas of tall, dense black spruce to provide the necessary fire protection.
- Clearing of streamside vegetation will only be done to the extent necessary to allow access for construction and maintenance equipment and to provide clearance for wires. Clearing within these areas will be conducted by hand.
- Use of the transmission line ROW for access to remote areas will be discouraged by leaving brush within the ROW. Where the ROW crosses streams or trails, a screen of vegetation will be maintained to reduce access to the ROW from these areas.
- In construction areas where ground disturbance is significant, or where recontouring is required, surface restoration will occur as required by the land owner or land management agency. The method of restoration will consist of returning disturbed areas back to their natural contour and revegetating with native species.
- Structures will be placed so as to avoid sensitive features as much as possible, including riparian areas, water courses, and cultural sites. The structures will be 200 feet from named or designated streams where possible; however, at the Tanana River crossing, structures may need to be sited within 200 feet of the river.

2.3.3 Aviation

- GVEA will notify the general aviation public of the presence of the new intertie, and ensure that the project is noted on the appropriate Federal Aviation Administration (FAA) aeronautical charts. Handouts with a detailed description of the transmission line

routing showing tower size and location of towers over 100 feet tall will be provided. These handouts will be made available in all flight service stations and fixed base operators at airports throughout the state.

- River crossings will be marked to assure military and civilian aviation safety. Towers from the Tanana River crossing to Salchaket and, as needed, from Salchaket to Nenana, will be marked with reflectors on the south side of the towers. Towers at the Tanana River crossing will be painted red and white, and marked with strobe lights.
- Aerial Marker Spheres will be installed on static wires at spans that cross the Nenana, Tanana, and other named rivers. These markers will be used in other areas where deemed necessary to reduce hazards to aviation.

2.3.4 Wildlife

- A 330-foot buffer zone will be identified around all Bald and Golden Eagle nests. Construction or ground clearing will not be allowed within this buffer zone. Human activities will not be allowed within or through this buffer zone during the nesting period.
- Construction or ground clearing will not occur within 2 miles of all active Peregrine Falcon nests.
- Except for emergency repairs, construction and maintenance activities will not occur from April 15 through June 15 within ROW Segments 7 and 16. Helicopter construction activities will avoid active swan nests from May 1 through August 31 along the entire ROW by a minimum distance of 1 mile.
- Transmission line design will minimize the potential for Trumpeter Swan and Sandhill Crane collisions by ensuring that: 1) transmission line wires (other than the static line) will be strung on one horizontal plane rather than in multiple, vertical stacks; 2) phase wires will be of the same diameter; and 3) wires will be well marked where they cross major rivers. Wires will be marked in other areas identified as having a high potential for conflicts with Trumpeter Swans and other waterfowl.
- To minimize environmental impacts while maintaining standard operating guidelines, GVEA will visually inspect the route by helicopter twice per year, typically in March and September. Operations and maintenance problems identified on the Tanana Flats will typically be addressed by a small repair crew flown out to the tower site(s) by helicopter before spring thaw or after fall freeze up. With the exception of emergency repair situations, maintenance operations on the Tanana Flats will be avoided or modified during critical periods to minimize impacts on wildlife.

2.3.5 Visual

- Dulled metal finishes will be used on all towers and the wires where applicable.
- At river and trail crossings, towers will be placed in a manner that will minimize visual impacts. Clearing will be minimized and existing vegetation (excluding tall trees) left within the ROW, where deemed appropriate for mitigation of visual impacts. Care will also be taken to minimize long, straight ROWs, skylining of structures, and other situations which increase visual impacts in areas that are considered to have high visual sensitivity.

2.3.6 Fire Management

- Prior to construction, site-specific fuel hazard reduction criteria will be developed by the Alaska Department of Natural Resources (ADNR), Division of Forestry and the BLM Alaska Fire Service to protect the transmission line while allowing for burn through. These criteria will suggest the minimum amount of clearing or other treatment needed to protect the line from fire.
- To allow for safety and engineering concerns, all trees higher than 10 feet may be cleared within 75 feet of the centerline. Clearing to ground level up to 150 feet either side of the centerline will be allowed in areas where large stands of black spruce occur and a danger from forest fires is expected.
- Where the ROW is closely aligned along the boundary of areas afforded Critical or Full Protection under the Alaska Fire Management Plan, the ROW can be used as a fire control line between lands afforded lower protection levels.

2.4 EFFECTS OF ALTERNATIVES

Impacts associated with the proposed transmission line tend to fall into two distinct categories: 1) those caused by crossing through the central portion of the Tanana Flats and 2) those associated with crossing through the Parks Highway corridor. Impacts on wildlife, habitat, and related issues (such as recreation and fire management) are expected to increase as the route moves farther into the Tanana Flats. Impacts on land use and socioeconomics tend to increase closer to the Parks Highway corridor. Key issues are presented below and summarized in Table 1.

Upland Vegetation: All of the routes evaluated would require clearing of upland vegetation in areas of tall, dense trees and shrubs for fire protection and line clearance. Some extended clearing of black spruce (up to 300 feet) may be required for additional fire protection. The *Old Intertie*, *Option A*, and the *North Routes* primarily cross through upland forest types and would

TABLE 1
ALTERNATIVES COMPARISON SUMMARY

Route/ Segments	Length in miles	Biological Resources														Human Environment																					
		Vegetation							Wildlife							Land Status								Visual Resources			Recreation					Socioeconomics	Cultural Resources				
																Land Jurisdiction				Existing & Planned Land Use																	
Uplands crossed (acres)	Floating bogs crossed (acres)	Shrub bogs and meadows crossed (acres)	Lakes and ponds crossed (acres)	Forested wetlands crossed (acres)	Riverine wetlands crossed (acres)	Number of Anadromous fish streams crossed	Bald Eagle Nest between 660 ft and 1 mile	Number of Trumpeter Swan nests within 1 mile (1995 data)	Moose high use calving areas (miles)	Moose winter concentration areas (miles)	Brown Bear habitat crossed (miles)	Black Bear denning habitat crossed (miles)	Delta Caribou Herd winter range crossed (miles)	Federal* (miles)	Military	State** (miles)	Private*** (miles)	Number of Private Parcels w/in 150' ROW	Military Impact Areas (miles)	Military Training Areas (miles)	Mining (miles)	Number of Airstrips w/in 1/2 mile	Areas of Planned Timber Sales (miles)	Number of Residences w/in 500 ft	Parallel to Highway (miles)	Parks Highway Crossings	Scenic Quality B (miles)	Number of RS 2477 Trails crossed	ROS Urban (miles)	ROS Rural (miles)	ROS Roaded Natural (miles)	ROS Semi-Primitive (miles)	Net Present Value of Cost by Route (1997 \$'s)	Archaeological, historic & recent use sites w/in 1 mile			
Old Intertie Route																																					
Total	169	1,499	6	468	9	247	32	4		1		3	27	36		8	4	68	53	224			6	2	5	322	52	23	104	1	13	121			188,024	96	
Option A – Refinement to Old Intertie (i.e., Railroad ROW)																																					
Total	169	1,271	6	515	14	435	40	4		4		11	27	36		9	4	74	51	194			8			243	49	19	106	1	14	125			183,616	85	
North Route																																					
Total	163	1,297	9	488	4	347	27	3	1	1		15	26	33		5	4	82	42	132			8	1	4	100	16	3	95	1	12	107			183,447	82	
South Route																																					
Total	96	420	134	830	4	387	36	3	1	1	34	43	26	41	9	10	27	55	6	15		28	4	1		8	6		29	1	3	27	9	57	153,102	43	
Rex/South Route																																					
Total	97	514	134	560	4	386	33	3	1	1	34	54	31	37	31	7	27	59	4	5		28	6	1			6		33	1	3	4	18	72	153,916	20	
Option B – Refinement to Rex/South (i.e., Chicken Cr. Bypass):																																					
Total	105	657	134	586	4	401	33	3	1	1	34	48	34	41	29	10	27	62	6	10		28	6				6		38	1	3	21	24	57	157,708	25	
Tatlanika Route																																					
Total	91	521	93	835	6	504	37	3	1	2	48	36	35	28	40		28	53	4	6		29	6				6		37	1	3	4	23	61	152,701	20	

Note: values have been rounded to the nearest whole number.

* Federal Jurisdiction includes State- and Native-selected lands

** State Jurisdiction includes Mental Health Trust lands and state land that has been Native-selected.

*** Private Jurisdiction includes University of Alaska, Alaska Railroad Corporation, Native Corporation, and Borough lands

result in a greater loss of upland vegetation compared to the other routes. None of the route alternatives would be expected to have an effect on upland vegetation outside of the ROW clearing.

Wetlands: All of the routes evaluated cross through similar types of wetlands. The four route alternatives that traverse the Tanana Flats (*South, Rex/South, Option B, and Tatlanika*), cross approximately 1.3 times the amount of wetlands as the *Old Intertie, Option A*, and the *North Routes*, which generally follow the Parks Highway corridor. Floating mat wetlands are one of the more high-value wetland habitats in the region and are impacted to some extent by all of the routes crossing the Tanana Flats.

Based on the proposed construction measures and the timing of construction, none of the routes are expected to affect wetlands beyond the selective clearing of trees and tall vegetation. Wetland functions are not expected to be adversely impacted since the soil will not be disturbed and root systems will be left intact, except for small areas at tower locations where the pilings are driven. Draining or filling (other than pile placement) will not occur in wetland areas. Over time, some cleared areas may experience some degradation of shallow permafrost. The results of degradation of permafrost could include localized subsidence and a greater degree of saturation, or areas of standing water in some areas.

Fish and Wildlife: The majority of lands within the study area are actively managed for wildlife. The northern foothills of the Alaska Range provide important habitat for raptors and brown bear. The Tanana Flats provide important habitat for Trumpeter Swan nesting, black bear feeding and denning, and moose calving and year-round habitat. The area north of the Tanana River along the Parks Highway corridor has lower fish and wildlife habitat value due to lower diversity of plant communities and more human development.

All of the routes cross through raptor and Trumpeter Swan habitats. The *Old Intertie, North, and South Routes* impact the least amount of Trumpeter Swan habitat. The *Tatlanika Route* passes near the highest number of Trumpeter Swan nesting sites.

None of the routes studied in this DEIS come within 330 feet of a Bald Eagle nest or within 2 miles of an American Peregrine Falcon nest.

All of the routes cross through moose winter concentration areas, brown bear habitat, and black bear denning habitat. The *Old Intertie* and *North Routes* are the only routes that do not pass through caribou fall and winter habitat in the foothills. All of the routes avoid the higher density moose calving area on the Tanana Flats east of Wood River; however, pockets of high-density moose calving could be encountered along the western portions of the Tanana Flats.

ROW clearing along any of the proposed routes is not expected to have a measurable effect on fish and wildlife species.

Indirect impacts could potentially have a greater influence on mammal populations if the presence of the ROW increases human access to previously inaccessible areas. This could result in increased harvest levels. Sport hunting or subsistence harvest in specific areas may need to be further regulated if local game populations decline as a result of increased harvest.

Land Status: The alternative routes traverse federal, state, Native, borough, Alaska Railroad Corporation, University of Alaska, and private lands. The majority of the land in the study area is publicly owned and is managed by either the state or federal government.

The primary issues associated with the construction of the proposed 230 kV transmission line are expected to occur from direct physical impacts with land uses. Land uses are primarily concentrated in the Parks Highway corridor, including: residential, commercial, and industrial land uses; mineral extraction; and air and ground transportation systems. Most land use impacts would occur in this area. Potential impacts to private property could be substantial, including condemnation, relocation, or easement acquisition. Land uses outside of the Parks Highway corridor are dispersed recreation, wildlife habitat, mining, and military training. There are potential conflicts with the Army's mission for continued availability of military training areas.

Visual Resources: Sensitive viewpoints within the area of the project alternative routes include: the Parks Highway (a State of Alaska-recognized scenic route) between Healy and Fairbanks; residences along the Railbelt corridor; the Alaska Railroad (a Scenic By-way); recreation resources along the Tanana, Wood, and Nenana Rivers; dispersed residences; residential concentrations; and communities. High visual impacts would occur to all of these from alternative routes that parallel or cross them. Visual impacts are less from alternative routes away from the developed area along Parks Highway.

Recreation: A transmission line located in a physical setting that is essentially unmodified and is largely undisturbed and natural appearing would likely be noticeable to the limited number of recreation users that are able to access the area. For those recreation users, the presence of the line could reduce the feeling of remoteness and diminish the experience.

In areas where there is more evidence of human activity and cultural modifications (roads, structures, development) recreation users are less likely to be impacted by the transmission line. These areas are generally more accessible and can receive moderate to high use.

Routes such as The *Old Intertie*, *North*, and *South*, that are largely located in or closer to areas that are culturally modified by development (i.e., buildings, roads), would have the least impact on recreation resources, opportunities, experiences, and users.

Routes such as the *Tatlanika*, *Rex/South*, and a majority of the *South*, that are located further away from the culturally modified corridor along the Parks Highway, would have more impacts on recreation resources, opportunities, experiences, and users although less frequently accessed than the more developed areas.

Tourism: Tourism is an important part of the local economy in Fairbanks, Nenana, Healy, and other communities located along the Parks Highway. Routes located along the Parks Highway have the potential to impact tourists using trails and other facilities located on or in the vicinity of the highway. These impacts are expected to be realized by a larger number of tourists than the other routes. The eastern routes have the potential to change the character of the immediate area near each route. The remoteness of the eastern routes will result in fewer people being affected by the line, although persons seeking experience in these areas may be more sensitive to disturbances of the natural environment.

Socioeconomics: All of the routes will result in short-term socioeconomic benefits from the increased construction employment and wages during intertie construction. Each of the route alternatives will also create benefits in the form of long-term electric supply reliability and lower electric costs. The *Old Intertie* and *North Routes* are expected to have comparatively high project costs associated with ROW acquisition. *Option A - the Railroad ROW*, would reduce *Old Intertie* ROW acquisition costs by moving the ROW further away from the Parks Highway.

Aviation Safety: Many pilots in Interior Alaska use rivers and major land features to navigate. Aircraft often fly close to the ground along the river corridors, especially during low visibility conditions. The study area has high aviation use and several pilots have expressed concerns about placement of the transmission line. Towers and/or wires will be marked with high-visibility devices on the Tanana and Nenana River crossings and other areas based on consultation with the FAA.

Fire Management: State land managers expressed concerns regarding potential impacts on fire management, particularly on the Tanana Flats. Operation of the line is not expected to result in any changes that would cause increased fire suppression within the study area.

2.5 PREFERRED ALTERNATIVE

The Preferred Alternative has been modified from the DEIS. The *Rex/South Route* with *Option B*, the *Chicken Creek By-Pass*, was identified as the Preferred Route in the DEIS by the BLM. The *Rex/South Route* has been selected as the Preferred Route, based on additional information regarding private land impacts and costs, and *Option B* will not be used.

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3.0 ERRATA SHEET

Factual corrections and updates made to the DEIS are presented below by the DEIS chapter and section numbers. Tables and Figures described as "attached" are located at the end of Section 3 in the order in which they would appear in the EIS.

TABLE OF CONTENTS

Page ii - Insert after Section 2.6.6:

"2.6.7 Alternative Routes Suggested from DEIS Public Comments 2-24"

Page v - Insert after Appendix J:

"Appendix K Memorandum of Understanding Between Usibelli Coal Mine, Inc. and GVEA"

Page viii - Insert after IPG:

"kWh kilowatt hour"

2.0 ALTERNATIVES ANALYZED

2.1 Alternative Development

Page 2-1, second paragraph, line 3 - change "Appendix B" to "Appendix C."

2.2.2 Alternatives Considered in This EIS.

Figure 2-1 (Route Alternatives Map) replace with attached, new Figure 2-1.

2.2.4 North Route

Page 2-4, Segment 2 - replace the paragraph with the following:

"**Segment 2:** The *North Route* begins at the Healy Substation and continues about 5 miles north, along the Usibelli Coal Mine haul road, to a point just north of Lignite Creek."

2.2.5 South Route

Page 2-5, second paragraph - replace the paragraph with the following:

"The *South Route* begins at the Healy Substation and continues about 5 miles north, along the Usibelli Coal Mine haul road, to a point just north of Lignite Creek."

2.2.6 Rex/South Route

Page 2-5, second paragraph - replace "Usibelli Coal Mine access road" with "Usibelli Coal Mine haul road."

2.2.8 Tatlanika Route

Page 2-6, second paragraph - replace "Usibelli Coal Mine access road" with "Usibelli Coal Mine haul road."

2.4 Proposed Action

2.4.5 Design Features Common to All Alternatives

Page 2-13, Measure #3 - add the following sentence at the end of this paragraph:

"In the event GVEA requests fire suppression action to protect the powerline, the GVEA will pay for the appropriate suppression costs."

2.4.6 Selectively Committed Mitigation Measures

Page 2-15, Measure #7 - replace the first sentence with the following:

"Except for emergency repairs, construction and maintenance activities will not occur from April 15 through June 15 within the ROW Segments 7, 16, and 22."

2.4.7 Environmental Permitting,

Page 2-17, Table 2-2 (Potential Permits and Approvals) - under U.S. Fish and Wildlife Service, Section 7 Consultation, replace the text with the following:

"A Section 7 consultation is required if a federal action might affect endangered or threatened species. The presence of American Peregrine Falcons in the project vicinity triggers the need for the consultation."

Page 2-19, Table 2-2 (Potential Permits and Approvals) - add the following potential permits and approvals to the table below State Agencies:

Agency Name	Type of Permit/Approval	Reason for Permit/Approval
Alaska Mental Health Trust Land Office (TLO)	ROW Permit	TLO issues ROW permits for utility crossings of TLO lands.
Alaska Railroad Corporation (ARRC)	ROW Permit	ARRC issues ROW permits for utility crossings of ARRC lands.
Alaska Division of Mining and Water Management	ROW Permit	Approval required for sections of the intertie crossing state coal leases.
	Mining Permit Modification	Approval of mining permit modification to change fly rock and ground vibration standards.

2.5 COMPARISON OF ALTERNATIVES

Table 2-3 (Alternatives Comparison Summary) - replace with attached, new Table 2-3.

2.6 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

Page 2-24 - add the following, new section at the end of the text.

"2.6.7 Alternative Routes Suggested from DEIS Public Comments

Rex Trail to Birch Lake Route: After reviewing this alternative, it was determined not to resolve issues already addressed by the existing range of alternatives. In fact, this alternative brought about new issues already resolved by the alternatives carried forward in the EIS.

Impacts to the military mission from this alternative were expected to be severe. Both the Army and Air Force heavily use the area crossed by this alternative. Aircraft (jet and helicopter) often fly at or near ground level, as allowed in the Military Operations Areas (MOA'S) that have been established in the area.

Aviation safety concerns in general (both civilian and military) are expected to be higher with this alternative. This is primarily due to crossing the Little Delta and Tanana Rivers in a more remote area, and by the fact that a transmission line in the area of the MOA'S would increase the risk for collisions during military training exercises.

The area between the cliffs bordering the Little Delta River and Birch Lake is a natural corridor for sandhill crane migration, and it is probable that collisions with the transmission line would occur. Other waterfowl also use this corridor and are concentrated during their migration.

This route would pass through an area that currently has only subtle modifications to the natural setting, with a few primitive trails, and little evidence of motorized use. A transmission line would create moderate alternations to the landscape, which would be readily apparent to recreation users in the area.

For the reasons stated, this alternative will not be carried forward in the FEIS.

Glennallen, Fort Greely, and Richardson Highway Route: After reviewing this route, it was determined not to meet the needs of the project. Since there is no connection from Glennallen to Anchorage, this alternative would not assist in getting power generated in Anchorage and Healy to the Fairbanks area. Therefore, this alternative will not be carried forward in the FEIS.

Railroad Route: The BLM considered the use of the railroad ROW when developing the current range of alternatives. Portions of the railroad ROW are utilized in the alternatives considered. More detailed information can be found in Section 2.6.6 on page 2-23 of the DEIS.

Healy to Birch Lake Route: After reviewing this alternative, it was determined not to resolve issues already addressed by the existing range of alternatives. In fact, this alternative brought about new issues already resolved by the alternatives carried forward in the EIS.

Impacts to the military mission and aviation safety are expected to be similar to those described above in the *Rex Trail to Birch Lake Route*.

Impacts to waterfowl migration would be similar to the *Rex Trail to Birch Lake Route*. Additionally, impacts to sheep and the Delta Caribou Herd would be higher with this route in comparison to the other alternatives analyzed.

This route would pass through an area that currently has only subtle modifications to the natural setting with limited evidence of surface or vegetative disturbance. This includes little or no evidence of primitive trails or motorized use. If a transmission line were to be routed through this area it would create a moderate alteration to the landscape, thus altering the recreation setting substantially along the entire alternative.

For the reasons stated, this alternative will not be carried forward in the FEIS.

Segment Combination 2, 5, 6, 9, 16, 23, 24, and 26: This alternative uses segments already contained in the existing range of alternatives. After review, the BLM decided that the alternative suggested was duplicative of the current range of alternatives. The alternative did not resolve issues not already resolved by the current range of alternatives. Therefore, this alternative will not be carried forward for further consideration.

Segment Combination 2, 5, 6, 9, 16, 23, 25, and 26: This alternative uses segments already contained in the existing range of alternatives. After review, the BLM decided that the alternative suggested was duplicative of the current range of alternatives. The alternative did not resolve issues not already resolved by the current range of alternatives. Additionally, the suggested location of the Tanana River crossing would increase aviation hazards because it would be more remote. Therefore, this alternative will not be carried forward for further consideration."

3.0 AFFECTED ENVIRONMENT AND EFFECTS OF ALTERNATIVES

3.4 WATER RESOURCES

3.4.1 Affected Environment

Page 3-7, Chena River, third sentence - replace "140-mile length" with "141-mile length (Selkregg, 1976)."

3.5 VEGETATION AND WETLANDS

3.5.1.1 Vegetation

Page 3-10, Table 3.5-1 (General Land Cover by Route) - change total wetland acres for the *Rex/South Route* from 1,343 to 1,245 acres.

Figure 3.5-2 (General Right of Way Clearing) the figure legend, "Areas of Minimal Clearing of the Right-of-way" - change to read "Areas of Minor Clearing of the Right-of-Way."

3.5.2.2 Wetlands

Page 3-16, first paragraph, first sentence - Change "Appendix C" to "Appendix D."

Page 3-17 - Replace the last two sentences in the first full paragraph with the following revision:

"Many wetlands types would not be cleared to any great degree, and only forested wetlands of thick black spruce would be cleared to the ground. Dwarf tree and shrub communities would not be cleared; only individual trees would be taken down. Mechanical tree crushing (i.e., hydroaxing) may impact wetlands by changing the habitat and potentially altering the rate of shallow permafrost degradation (Linnell, 1973). However, given the proposed construction methods, tower and foundation designs, and seasonal restrictions on construction access, impacts to wetlands are expected to be limited to cleared areas within the ROW."

3.6 WILDLIFE AND HABITAT

3.6.1 Affected Environment

Page 3-21, last sentence - change "Appendix D" to "Appendix E."

3.6.1.2 Birds

Page 3-23, first paragraph, fourth sentence - add Canada Geese (*Branta canadensis*) to the list of waterfowl and other waterbirds.

Page 3-23, Table 3.6-1 - replace with the following, revised Table 3.6-1:

Table 3.6-1
Trumpeter Swan Observations at Tanana Flats, 1993-1997

Type	Year Observed				
	1993	1994	1995	1996	1997
Pairs & Broods	37	33	38	16	23
Pairs	48	64	53	96	70
Flocks	4 (12) ¹	7 (25) ¹	10 (31) ¹	7(25) ¹	11(53) ¹
Singles	18	17	22	22	13
Cygnets	118	106	107	54	75

Notes: 1 = Total number of birds observed in the flocks.

Source: Personal communication - P. Bruce, U.S. Army, 1994; D. Groves, USFWS, 1998

3.6.2.2 Birds

Page 3-34, first paragraph, seventh sentence, "Spirical Vibration Damp" - replace with "Spiral Vibration Dampers."

Page 3-34, third paragraph, first sentence - insert at the end of the sentence: "Kroodsma, 1978; Faanes, 1987; APLIC, 1994."

Page 3-37, Bird Summary, first paragraph - insert the following sentence at the end of the paragraph:

"There is some potential for bird mortality from collisions on all route segments but areas of particular hazard that have not been identified, will be evaluated by a 3-year collision study after construction of the line."

3.6.2.3 Mammals

Page 3-39, Moose, first paragraph - replace the last sentence with the following:

"The existence of the cleared ROW may improve hunting opportunities by either increasing the number of hunters and hunter effort, or shifting hunting pressure to areas along the transmission line, resulting in an increase in bull moose harvest. If bull moose harvest does increase, the effect of the harvest would lower the bull/cow ratio for the moose population in the area."

3.9 LAND STATUS

3.9.1 Affected Environment

Figure 3.9-1 (Land Jurisdiction Map) - replace sheets 1 of 8, 2 of 8, 6 of 8, and 8 of 8 with attached, revised sheets.

Figure 3.9-2 (Land Use Map) - replace Sheets 1 of 8, 2 of 8, and 6 of 8 with attached, revised sheets.

3.9.1.1 Land Jurisdiction

Page 3-49, Borough - insert the following paragraphs at the end of the paragraph:

"The Public Works Department of the FNSB will be constructing the South Cushman Landfill Expansion east of the existing landfill facility beginning in April 1998. The operation and construction requirements of the landfill expansion indicate that more than 5.5 million cubic yards of gravel will be used over the next 40 to 50 years. A significant portion of the material could be obtained from developing a gravel pit between Goose Island and the Tanana River Levee. The gravel extraction has been proposed to provide the base grading for the proposed Tanana Lakes Park during the development of the South Cushman Landfill. The amount, location, and schedule of gravel extraction will determine the phasing of park development, which is independent of the landfill expansion and operation. A preliminary program and park layout has been prepared.

The proposed Tanana Lakes Park will be a large, water-based recreational park located between the Tanana Levee and Goose Island. The overall size of the proposed park is approximately 400 acres, of which 150 to 200 acres is open water. The park is meant to service the Fairbanks community and provide both active motorized and passive non-motorized uses.

Discussions with FNSB Department of Land Management indicate little concern for conflicts between the proposed park development and the BLM's proposed action (Costello - Personal communication, 1998)."

3.9.2.1 Land Jurisdiction by Route

Page 3-55, second paragraph, last sentence - change "Appendix E" to "Appendix F".

Page 3-56 - replace Table 3.9-1 with the following, revised Table 3.9-1:

**Table 3.9-1
Land Jurisdiction Along Alternatives**

Jurisdiction	Miles Along Alternatives ¹						
	Old Intertie Route	Option A – Railroad ROW	North Route	South Route	Rex/South Route	Option B – Chicken Creek By-Pass	Tatlanika Route
Private ²	53	51	42	6	4	6	4
State	68	74	82	55	59	62	53
Federal	8	9	4	10	7	10	0
Military	4	4	5	27	27	27	28
Total	133	138	133	98	97	105	85

Notes: 1 = Mileage has been rounded to the nearest whole number.
 2 = Private includes U of A, ARRC, Native, and Borough lands.

3.9.2.2 Land Use Impacts by Route

Page 3-57 - insert the following paragraph after the first paragraph:

"Potential impacts to coal mining in the vicinity of Healy include changes to mining permits due to ground vibrations, air blast, and fly rock in close proximity to proposed intertie routes. Without permit revisions, blasting operations could be severely constrained. These constraints could potentially increase mining and coal costs to consumers."

Page 3-58, replace Table 3.9-2 (Existing and Planned Land Use Crossed by Alternative) with the following, revised Table 3.9-2:

Table 3.9-2
Existing and Planned Land Use Crossed by Alternative

Land Uses/Summaries	Old Intertie	Option A Railroad ROW	North	South	Rex/South	Option B Chicken Creek By-Pass	Tatlanika
Military (miles) ¹							
Training Area	0	0	0	28	28	28	28
Impact Area	0	0	0	0	0	0	0
Mining (miles) ¹	6	8	8	4	6	6	6
Planned Timber Sales (miles) ¹	5	0	4	0	0	0	0
Number of Residences Within 500 Feet	322	243	100	8	0	0	0
Number of Private Parcels Crossed	224	194	132	14	4	10	6
Number of Airstrips Within 0.5 Miles	8	8	9	5	6	6	4

Notes: 1 = Mileage was rounded to the nearest whole number

Page 3-59 - replace paragraph 3 with the following:

"Residences are clustered along the existing 138 kV transmission line north of the Gold Hill Substation (Segment 27). Many residences and approximately 2 miles of mineral claims are also located east of Fairbanks along the southern 10 miles through this area (Segment 30). Segment 30 crosses University of Alaska land south of the Chena River, Sections 4 and 5, Township 1 South, Range 2 East (see Figure 3.9.1, Land Jurisdiction Map, Sheet 8 of 8). This land, known as the Drury Gift, was conveyed with title restrictions that limit the University's ability to sell easements or cut trees. The agreement with the donor states that the University will maintain the property in good faith, including prevention of encroachment of transmission lines. This may create a practical limitation on the University's ability to cooperate with GVEA on granting an easement through this property. An airstrip also is located in this area. Segment 31 crosses through the Fort Wainwright Small Arms Impact Area, parallels the highway, and would cross several urban streets."

3.10 VISUAL RESOURCES

3.10.1.1 Methodology

Page 3-61, second paragraph - replace the first two sentences with the following:

"The majority of the lands in the study area are administered by the state and the Department of Defense. The BLM has oversight responsibilities and co-manages military controlled lands for certain non-military purposes with the concurrence of the Department of Defense."

3.10.1.2 General Landscape Characterization

Page 3-64, fourth paragraph, fifth sentence - change "Appendix F" to "Appendix G".

3.11 RECREATIONAL RESOURCES

Figure 3.11-2 - add the following description to the legend:

"Pink with red hatching indicates unauthorized recreational use."

Figures 3.11-3 and 3.11-4 - add the following description to the legends:

"Blue with red hatching indicates unauthorized recreational use."

3.12 TOURISM

3.12.1 Affected Environment

Page 3-81, first paragraph, third sentence - change "Appendix G" to "Appendix H".

3.13 SOCIOECONOMIC RESOURCES

3.13.1.4 Healy

Page 3-87, second paragraph, first sentence - replace with the following:

"Coal Mining in the Healy area commenced in 1918. Healy emerged following the development of the Usibelli Coal Mine in 1943."

3.13.2.4 Benefit Cost Analysis

Page 3-100 - insert the following after the first paragraph:

"Using 1997 data on average residential consumption by month and the additional cost of \$0.0046 per kilowatt hour (kWh), the increased cost to the average residential customer would be about \$41 per year. This is an approximate 3.8 percent increase above the annual

cost that would be incurred with the *Rex/South Route*. This estimate is based on the following assumptions:

Item	Amount/Value
a. Differential cost between existing corridor and <i>Rex/South Route</i>	\$ 34,000,000
b. Interest rate	7.5%
c. Term of loan	25
d. First year interest costs (a*b)	\$ 2,550,000
e. Depreciation costs (a/34)	\$ 1,000,000
f. Debt coverage factor	1.5:1
g. GVEA sales (million kWh)	1,050
h. Required rate increase (d + e + f)/g	\$0.0046
i. Current residential rate (\$/kWh)	
First 500 kWh	\$ 0.1125
Over 500 kWh	\$0.0950
j. Average residential cost	
Average use - 750 kWh	\$80.00
Customer Charge	<u>\$10.00</u>
Total Average Cost	\$90.00"

3.13.3 Summary

Page 3-101 - replace second sentence with the following:

"Each of the route alternatives also will create benefits in the form of long-term electric supply reliability and lower electric costs; however, the *South*, *Rex/South*, and *Tatlanika Routes* would have a higher degree of reliability and cost savings."

Page 3-101 - replace fifth sentence with the following:

"The *South Route* would require ROW acquisition in rural communities that have opposed routes through the Parks Highway corridor."

Replace seventh sentence with the following:

"The *Tatlanika Route* minimizes the impacts on rural communities."

3.16 FIRE MANAGEMENT

3.16.1 Affected Environment

Page 3-109, first paragraph - replace the first sentence with the following:

"Within the study area, fire management is conducted by the BLM Alaska Fire Service (AFS) for federal lands, and ADNDR Division of Forestry for all other state and private lands. The Army has an interdepartment support agreement with the AFS to manage and suppress wild land and forest fires on the Fort Wainwright Military Reservation. The Army provides the BLM with the use of buildings for office and housing and use of the Fort Wainwright Army Airfield for the AFS operations in exchange for providing fire suppression on Army lands.

The second sentence of the first, original paragraph starts a new paragraph:

"Fires are currently managed under policies set forth..."

Page 3-110 - replace the second paragraph with the following:

"According to fire map atlases maintained by the AFS, portions of the study area fall into four categories: Critical, Full, Modified, and Limited Protection areas. Critical Protection areas are located along the Parks Highway near Healy, and at Clear Air Force Station, Anderson, and along the Parks Highway north of Nenana. The Fairbanks metropolitan area, Ester Dome, and surrounding areas also are designated as Critical Protection. Most of the state lands in the study area, including those within 6 miles of the Parks Highway and the state lands in the Tanana Flats, are designated as Full Protection. A large portion of the Tanana Flats (approximately three sections) just west of the Wood River is designated as Modified Protection. Most of the northern foothills of the Alaska Range, the Fort Wainwright Tanana Flats Military Reservation, and the area south of Fort Wainwright is classified as Limited Protection. The state is currently proposing to change some fire protection levels on the Tanana Flats outside of the Parks Highway corridor from Full to Limited."

3.16.2 Effects of Alternatives

Page 3-111 - replace the seventh paragraph with the following:

"Rex/South Route: The foothills crossed by the *Rex/South Route* are designated for Full Protection. The route crosses land designated for Full Protection on the Tanana Flats, just outside the Parks Highway corridor. The portion of the route on the Fort Wainwright Military Reservation, east of the Wood River, is classified as Limited. The portion of the route that parallels the Parks Highway on the western Tanana Flats is considered to have beneficial effects on fire management because it could serve as a fire line between the Critical

Protection designation for the Parks Highway corridor and the adjacent Full Protection area to the east."

3.18 OTHER ENVIRONMENTAL CONSIDERATIONS

3.18.1 Summary of Cumulative Impacts

Page 3-115 - replace the last paragraph with the following:

"GVEA is investigating the installation of an overhead fiber-optic cable during the construction of the Northern Intertie."

Table 3.18-1 (Comparison of Alternatives) - replace with the attached, revised Table 3.18-1.

6.0 REFERENCES

Page 6-11, after Conant, B. reference - insert:

"Costello, Paul, Director of Land Management, Fairbanks North Star Borough. Personal communication with Gary Foreman, BLM. April 2, 1998."

Page 6-12, after Ott, A. reference - insert:

"Peabody, Al. Dryden & LaRue, Anchorage, Alaska. Fax sent to Tim Lane of Northern Economics on O&M costs by line route. November 21, 1997."

Appendix I Benefit-Cost Analysis

Page 9, Part 2 (Cost Summary) - insert the following sentence at the end of the paragraph:

"Table 2-2 presents estimates of annual operating and maintenance costs for the transmission line for each route alternative."

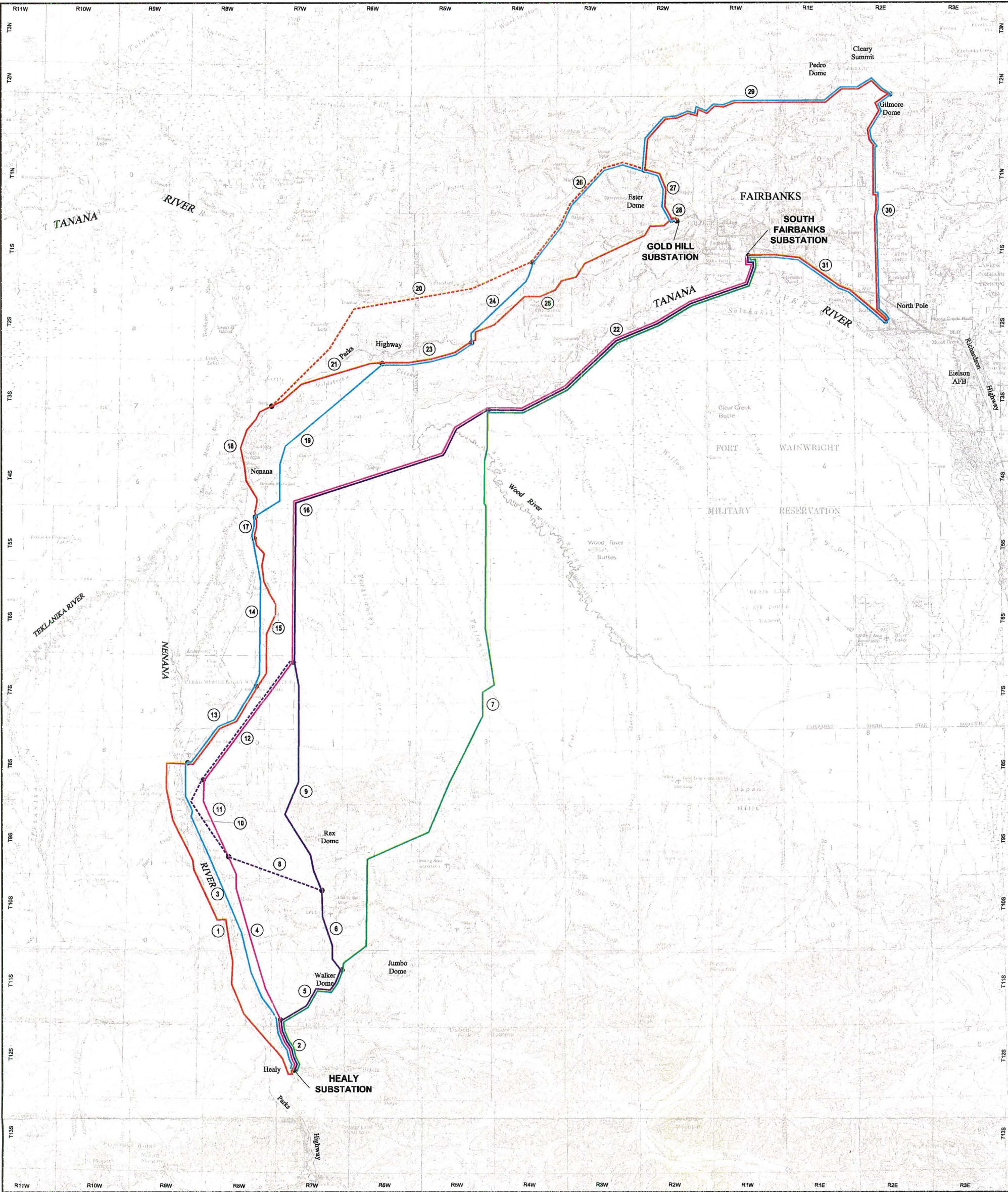
Insert new Table 2-2, "Summary of Operation and Maintenance Cost by Alternative" after Table 2-1.

Appendix K Memorandum of Understanding Between Usibelli Coal Mine, Inc. And GVEA

Attach new Appendix K (attached) after Appendix J.

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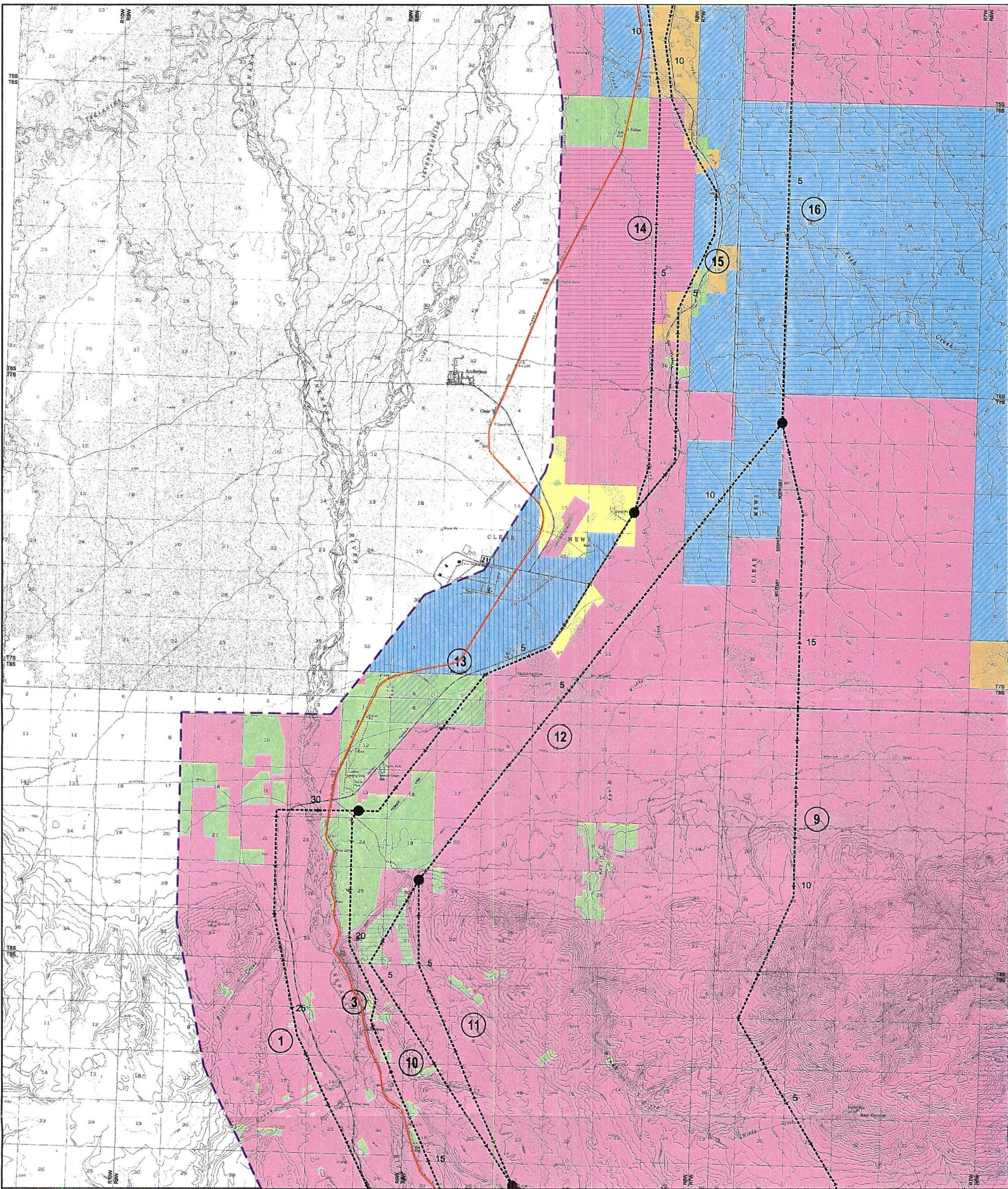
ERRATA SHEET ATTACHMENTS



Segment Cross Reference:

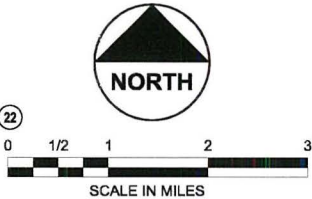
- Old Intertie Route: 1 13 15 17 18 21 23 25 27 28 29 30 31
- Option A: Refinement to Old Intertie (i.e., Railroad ROW) 1 13 15 17 18 20 26 27 28 29 30 31
- North Route: 2 3 13 14 17 19 23 24 26 27 28 29 30 31
- South Route: 2 4 11 12 16 22
- Rex/South Route: 2 5 6 8 16 22
- Option B: Refinement to Rex/South (i.e., Chicken Cr. Bypass) 2 5 6 8 10 12 16 22
- Tatlanika Route: 2 5 7 22





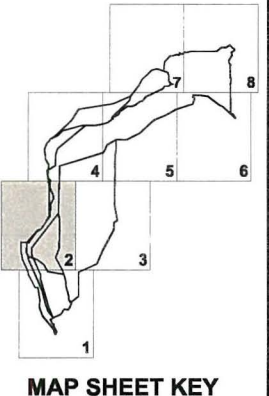
Segment Cross Reference:

- Old Intertie Route:** (1) (13) (15) (17) (18) (21) (23) (25) (27) (28) (29) (30) (31)
- Option A:** Refinement to Old Intertie Route (i.e., Railroad ROW): (1) (13) (15) (17) (18) (20) (26) (27) (28) (29) (30) (31)
- North Route:** (2) (3) (13) (14) (17) (19) (23) (24) (26) (27) (28) (29) (30) (31)
- South Route:** (2) (4) (11) (12) (16) (22)
- Rex/South Route:** (2) (5) (6) (9) (16) (22)
- Option B:** Refinement to Rex/South Route (i.e., Chicken Cr. Bypass) (2) (5) (6) (8) (10) (12) (16) (22)
- Tatlanika Route:** (2) (5) (7) (22)



LEGEND

- | | |
|----------------------------|---------------------------------|
| Borough | State Wildlife Refuge |
| BLM | Native Corporation |
| Federal (Native Selection) | Private |
| Federal (State Selection) | Alaska Railroad Corporation |
| Military | University of Alaska |
| State of Alaska | Land Jurisdiction Not Available |
| State Forest | Study Area Boundary |
| State Mental Health | Alaska Railroad |



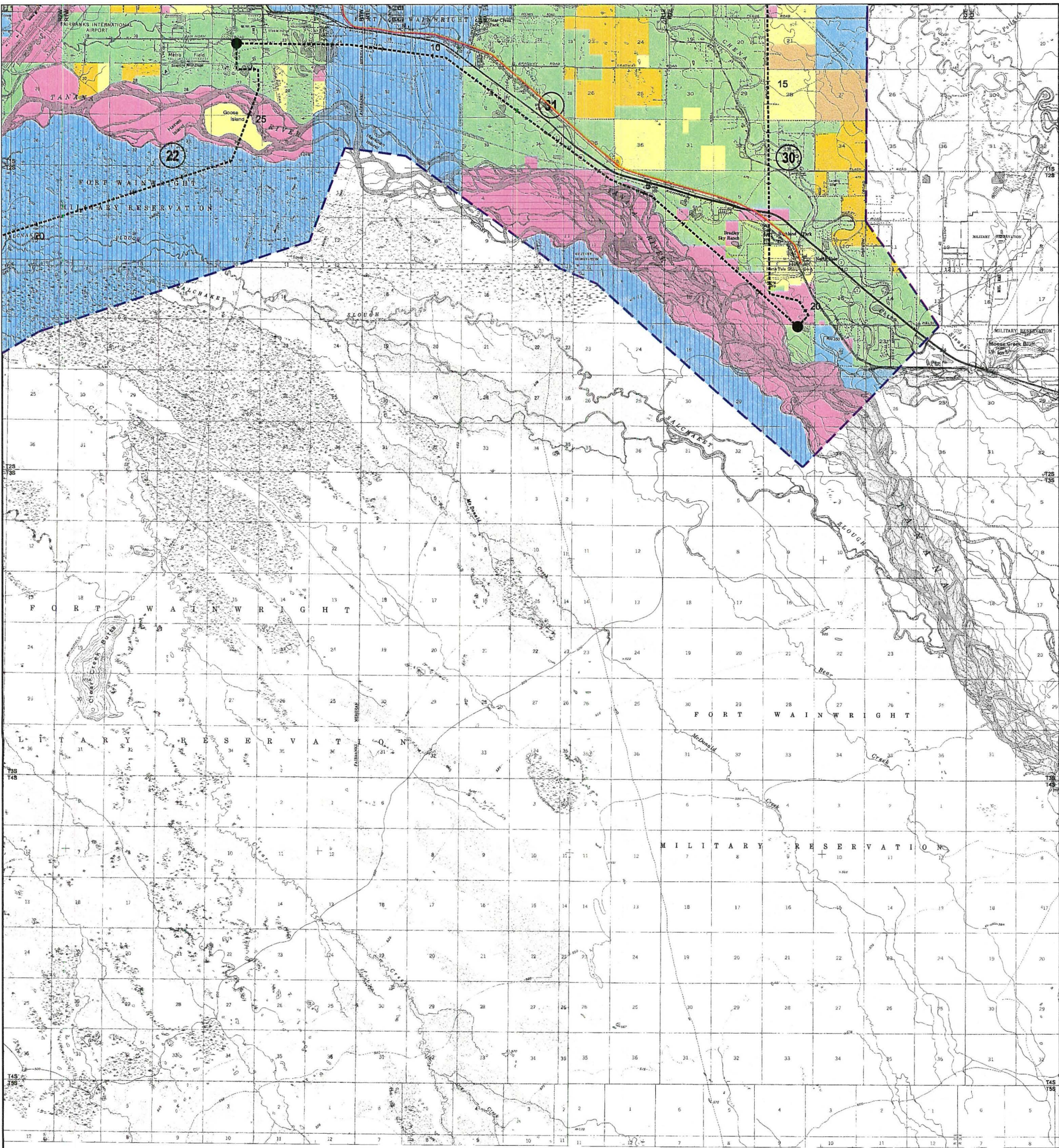
NORTHERN INTERTIE - ENVIRONMENTAL IMPACT STATEMENT

LAND JURISDICTION MAP

DAMES & MOORE
A DAMES & MOORE GROUP COMPANY

DRWN BY: E. GUSARDE DRAWING DATE: 28 APRIL 1989
DAMES & MOORE JOB NO.: 0000-013-020 FILE NAME: 000070131-1M&LJURIMPV.DWG

MAP SHEET 2 OF 8
FIGURE 3.9-1



Segment Cross Reference:

Old Intertie Route: (1) (13) (15) (17) (18) (21) (23) (25) (27) (28) (29) (30) (31)

Option A: Refinement to Old Intertie Route (i.e., Railroad ROW): (1) (13) (15) (17) (18) (20) (26) (27) (28) (29) (30) (31)

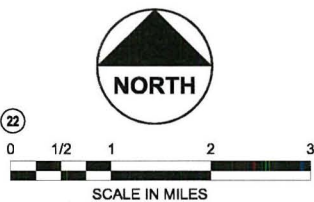
North Route: (2) (3) (13) (14) (17) (19) (23) (24) (26) (27) (28) (29) (30) (31)

South Route: (2) (4) (11) (12) (16) (22)

Rex/South Route: (2) (5) (6) (9) (16) (22)

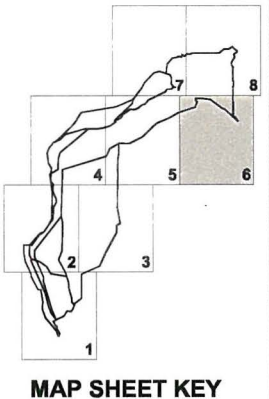
Option B: Refinement to Rex/South (i.e., Chicken Cr. Bypass) (2) (5) (6) (8) (10) (12) (16) (22)

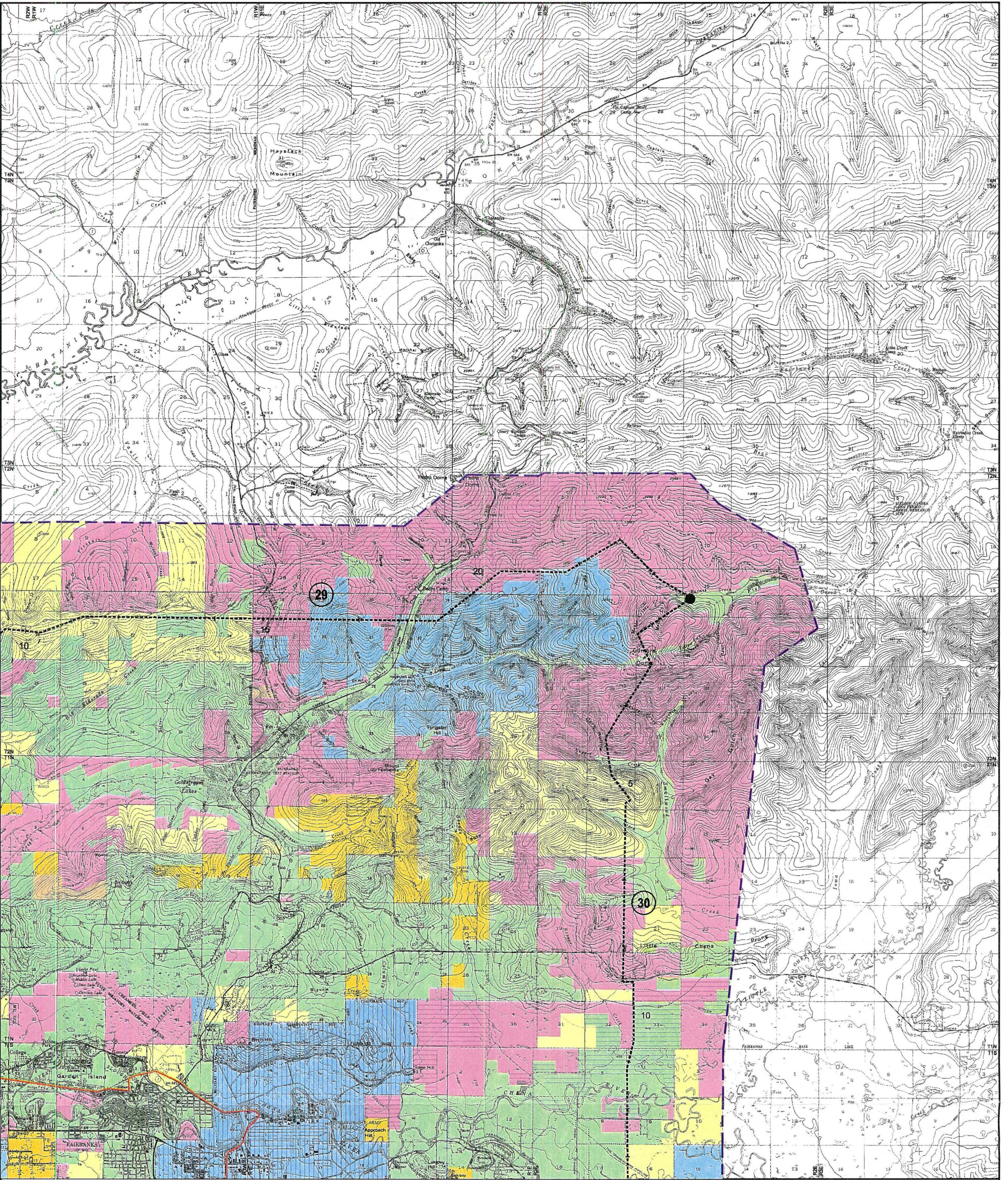
Tatlanika Route: (2) (5) (7) (22)



LEGEND

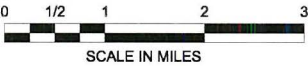
- | | |
|----------------------------|---------------------------------|
| Borough | State Wildlife Refuge |
| BLM | Native Corporation |
| Federal (Native Selection) | Private |
| Federal (State Selection) | Alaska Railroad Corporation |
| Military | University of Alaska |
| State of Alaska | Land Jurisdiction Not Available |
| State Forest | Study Area Boundary |
| State Mental Health | Alaska Railroad |





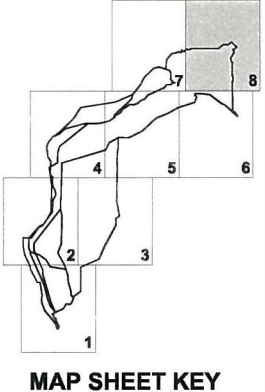
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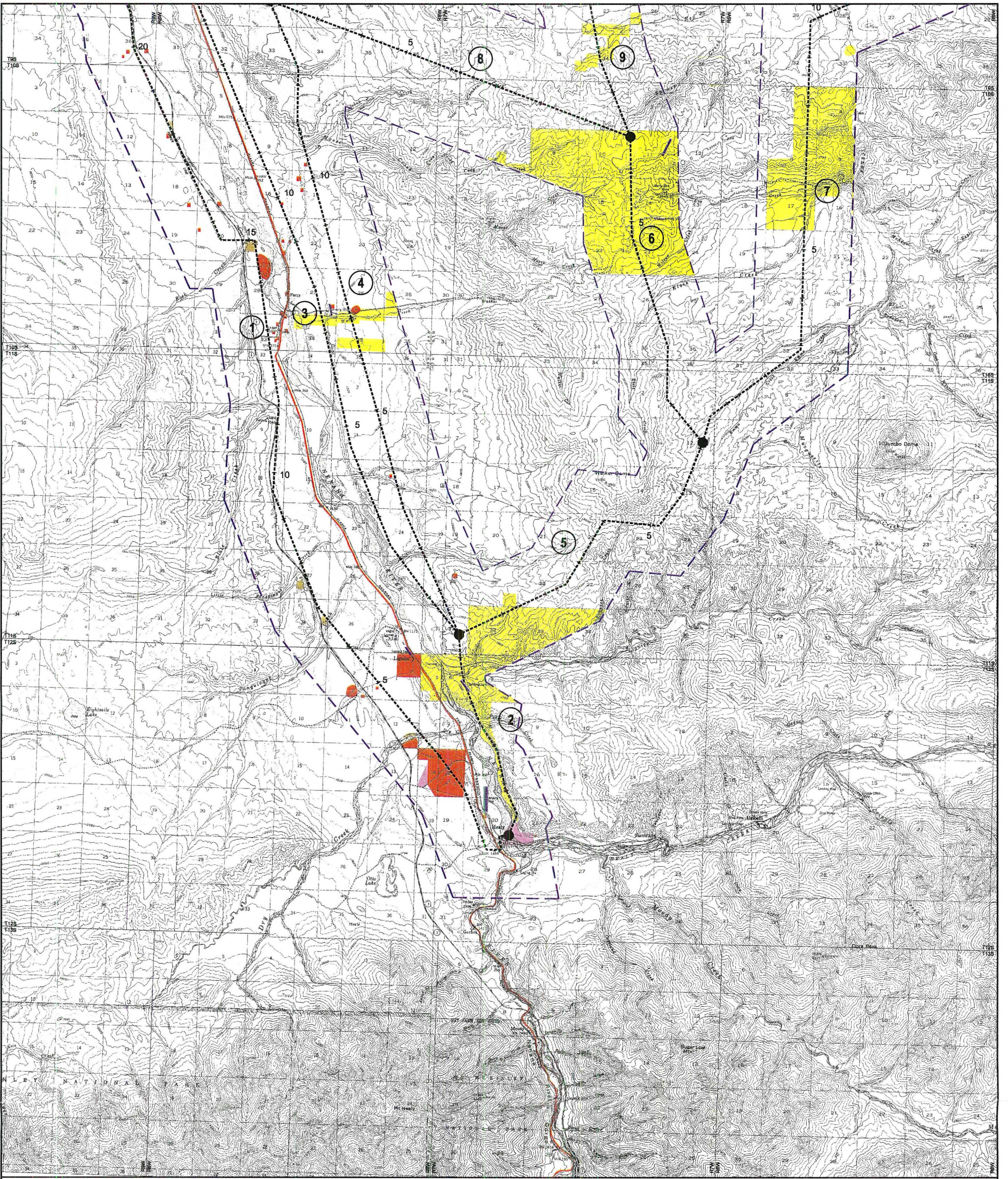
- Old Intertie Route:** (1) (13) (15) (17) (18) (21) (23) (25) (27) (28) (29) (30) (31)
- Option A:** Refinement to Old Intertie Route (i.e., Railroad ROW): (1) (13) (15) (17) (18) (20) (26) (27) (28) (29) (30) (31)
- North Route:** (2) (3) (13) (14) (17) (19) (23) (24) (26) (27) (28) (29) (30) (31)
- South Route:** (2) (4) (11) (12) (16) (22)
- Rex/South Route:** (2) (5) (6) (8) (9) (16) (22)
- Option B:** Refinement to Rex/South (i.e., Chicken Cr. Bypass) (2) (5) (6) (8) (10) (12) (16) (22)
- Tatlanika Route:** (2) (5) (7) (22)



LEGEND

- | | |
|----------------------------|---------------------------------|
| Borough | State Wildlife Refuge |
| BLM | Native Corporation |
| Federal (Native Selection) | Private |
| Federal (State Selection) | Alaska Railroad Corporation |
| Military | University of Alaska |
| State of Alaska | Land Jurisdiction Not Available |
| State Forest | Study Area Boundary |
| State Mental Health | Alaska Railroad |





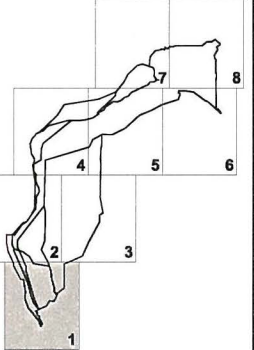
Segment Cross Reference:

- Old Intertie Route: 1 13 15 17 18 21 23 25 27 28 29 30 31
- Option A: Refinement to Old Intertie Route (i.e., Railroad ROW): 1 13 15 17 18 20 26 27 28 29 30 31
- North Route: 2 3 13 14 17 19 23 24 26 27 28 29 30 31
- South Route: 2 4 11 12 16 22
- Rex/South Route: 2 5 6 8 16 22
- Option B: Refinement to Rex/South (i.e., Chicken Cr. Bypass) 2 5 6 8 10 12 16 22
- Tatlanika Route: 2 5 7 22

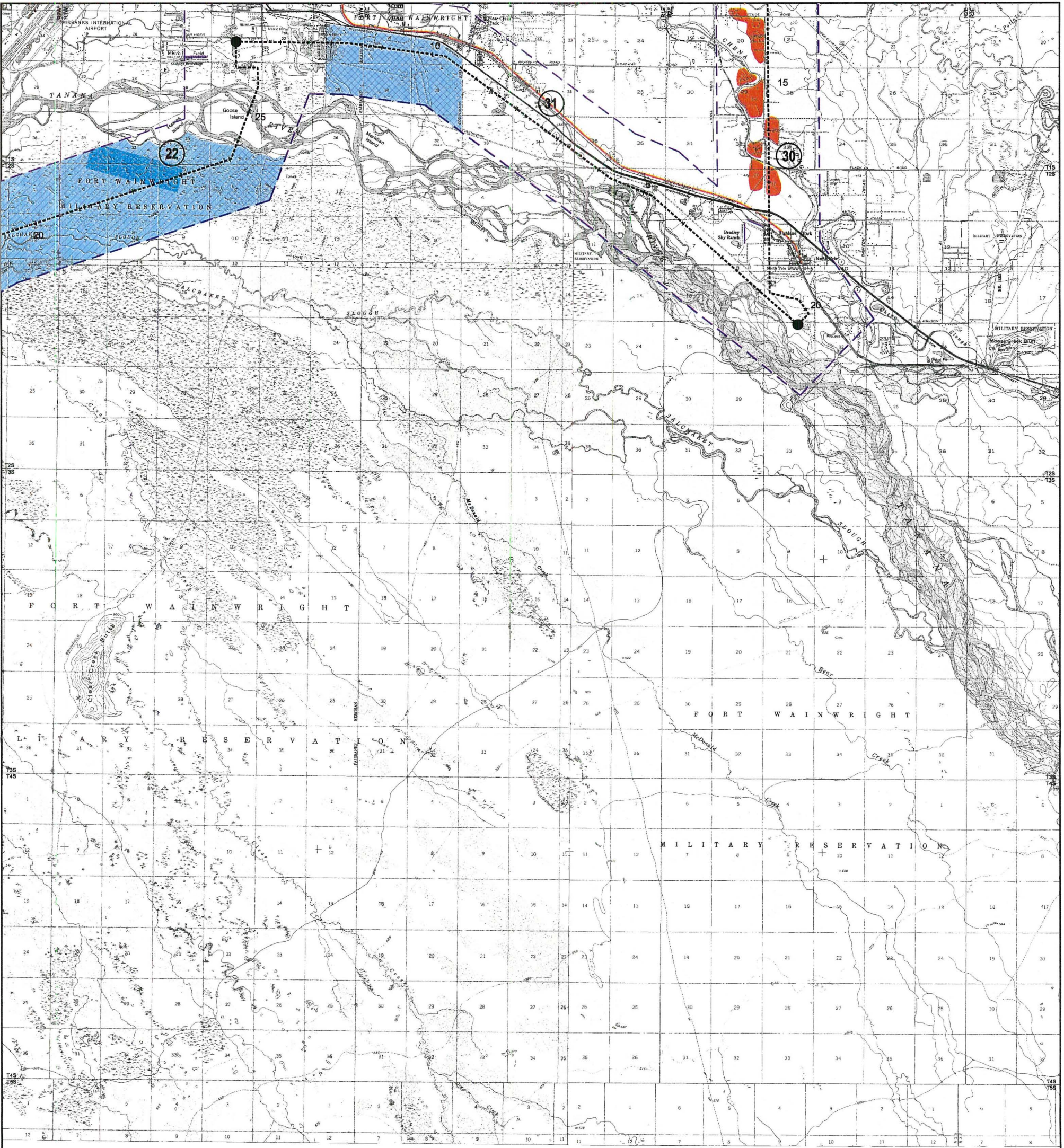


LEGEND

- | | |
|-----------------------|---------------------------|
| Agriculture | Military Training Area |
| Airport/Airstrip | Mining |
| Coal Leases | Planned Timber Sale Areas |
| Communications | Residential |
| Gravel Source | Alaska Railroad |
| Industrial/Commercial | Study Area Boundary |
| Military Drop Zone | |
| Military Impact Area | |



MAP SHEET KEY



Segment Cross Reference:

Old Intertie Route: 1 13 15 17 18 21 23 25 27 28 29 30 31

Option A: Refinement to Old Intertie Route (i.e., Railroad ROW): 1 13 15 17 18 20 26 27 28 29 30 31

North Route: 2 3 13 14 17 19 23 24 26 27 28 29 30 31

South Route: 2 4 11 12 16 22

Rex/South Route: 2 5 6 8 16 22

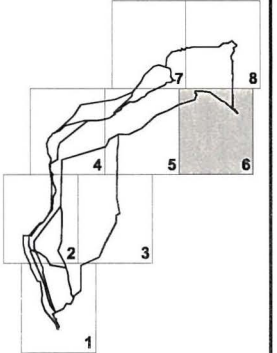
Option B: Refinement to Rex/South (i.e., Chicken Cr. Bypass) 2 5 6 8 10 12 16 22

Tatlanika Route: 2 5 7 22



LEGEND

Agriculture	Military Training Area
Airport/Airstrip	Mining
Coal Leases	Planned Timber Sale Areas
Communications	Residential
Gravel Source	Alaska Railroad
Industrial/Commercial	Study Area Boundary
Military Drop Zone	
Military Impact Area	



MAP SHEET KEY

NORTHERN INTERTIE - ENVIRONMENTAL IMPACT STATEMENT

LAND USE MAP

MAP SHEET 6 OF 8
FIGURE 3.9-2

Table 3.18-1 COMPARISON OF ALTERNATIVES

Route/ Segments	Length in miles	Biological Resources														Human Environment																						
		Vegetation							Wildlife							Land Status										Visual Resources			Recreation				Socioeconomics	Cultural Resources				
		Uplands crossed (acres)	Floating bogs crossed (acres)	Shrub bogs and meadows crossed (acres)	Lakes and ponds crossed (acres)	Forested wetlands crossed (acres)	Riverine wetlands crossed (acres)	Number of Anadromous fish streams crossed	Bald Eagle Nest between 660 ft and 1 mile	Number of Trumpeter Swan nests within 1 mile (1995 data)	Moose high use calving areas (miles)	Moose winter concentration areas (miles)	Brown Bear habitat crossed (miles)	Black Bear denning habitat crossed (miles)	Delta Caribou Herd winter range crossed (miles)	Federal* (miles)	Military (miles)	State** (miles)	Private*** (miles)	Number of Private Parcels w/in 150' ROW	Military Impact Areas (miles)	Military Training Areas (miles)	Mining (miles)	Number of Airstrips w/in 1/2 mile	Areas of Planned Timber Sales (miles)	Number of Residences w/in 500 ft	Parallel to Highway (miles)	Parks Highway Crossings	Scenic Quality B (miles)	Number of RS 2477 Trails crossed	ROS Urban (miles)	ROS Rural (miles)	ROS Roaded Natural (miles)	ROS Semi-Primitive (miles)	Net Present Value of Cost by Route (1997 \$s)	Archaeological, historic & recent use sites w/in 1 mile		
Old Intertie Route																																						
1	31	263	1	215	5	36	7	1				3	27	3		2		22	6	33				1	2		48	28	8	30		3	38					31
13	9	131		7										8		1	4	6	4	10				1	1		6	9	3		1		8					2
15	13	29	3	120	1	70								13		2		3	7	8						49		5				13					1	
17	2	4		9		12				1				2					2	1						12	2					2						
18	10	129	2	10	1	14	18	2						10		1		2	8	30					1	48	10		10			10					8	
21	10	157				21												4	3	11						1	19	3	1	10			10				2	
23	8	92		8		14												5	3	2						1		0		6			8					
25	20	378				10												16	4	26				0		3	60		6	20			17				18	
27	5	49		2		36												2	4	18				2	1		12			5			4				9	
28	1	15																	1	3										1		1					1	
29	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30	21	252		97	2	34	7	1								1		8	11	82				2	3		68			21		10	12					23
31	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	169	1,499	6	468	9	247	32	4		1		3	27	36		8	4	68	53	224				6	8	5	322	52	23	104	1	13	121			188,024	96	
Option A – Refinement to Old Intertie (i.e., Railroad ROW)																																						
1	31	263	1	215	5	36	7	1				3	27	3		2		22	6	33				1	2		48	28	8	30		3	38					31
13	9	131		7										8		1	4	6	4	10				1	1		6	9	3		1		8					2
15	13	29	3	120	1	70								13		2		4	7	8						49		5				13					1	
17	2	4		9		12				1				2					2	1						12	2					2						
18	10	129	2	10	1	14	18	2						10		1		2	8	30					1	48	10	3	10			10					8	
20	26	245		52	4	161	8			3		8						20	4	7									26			26					8	
26	13	154		3	1	72										1		10	4	2				2					13			13					2	
27	5	49		2		36												2	4	18				2	1		12			5		1	4				9	
28	1	15																	1	3										1		1					1	
29	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30	21	252		97	2	34	7	1								1		8	11	82				2	3		68			21		10	12					23
31	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	169	1,271	6	515	14	435	40	4		4		11	27	36		9	4	74	51	194				8	8		243	49	19	106	1	14	125			183,616	85	
North Route																																						
2	5	75		7			16	1				2	6					3	2	1					3			6		6		1	4					16
3	23	164		218		26	1					11	20	1				19	4	7				0	1		2			23			18					25
13	9	131		7										8		1	4	6	4	10				1	1		6	9	3		1		8					2
14	12	65	4	87		47								12		1		8	3	3				1								13					2	
17	2	4		9		12				1				2					2	1						12	2					2						
19	17	191	5	49	1	50	3	1	1					10		1		12	4	3						2			12			17					1	
23	8	92		8		14												5	3	2						1		0		6			8					
24	9	105		1		56						2						9								1				9			9					
26	13	154		3	1	72										1		10	4	2				2					13			13					2	
27	5	49		2		36												2	4	18				2	1		12			5		1	4				9	
28	1	15																	1	3										1		1					1	
29	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30	21	252		97	2	34	7	1								1		8	11	82				2	3		68			21		10	12					23
31	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	163	1,297	9	488	4	347	27	3	1	1		15	26	33		5	4	82	42	132				8	9	4	100	16	3	95	1	12	107			183,447	82	

Table 3.18-1 COMPARISON OF ALTERNATIVES

Route/ Segments	Length in miles	Biological Resources														Human Environment																	Socioeconomics	Cultural Resources			
		Vegetation							Wildlife							Land Status					Existing & Planned Land Use			Visual Resources			Recreation										
		Uplands crossed (acres)	Floating bogs crossed (acres)	Shrub bogs and meadows crossed (acres)	Lakes and ponds crossed (acres)	Forested wetlands crossed (acres)	Riverine wetlands crossed (acres)	Number of Anadromous fish streams crossed	Bald Eagle Nest between 660 ft and 1 mile	Number of Trumpeter Swan nests within 1 mile (1995 data)	Moose high use calving areas (miles)	Moose winter concentration areas (miles)	Brown Bear habitat crossed (miles)	Black Bear denning habitat crossed (miles)	Delta Caribou Herd winter range crossed (miles)	Federal* (miles)	Military (miles)	State** (miles)	Private*** (miles)	Number of Private Parcels w/in 150' ROW	Military Impact Areas (miles)	Military Training Areas (miles)	Mining (miles)	Number of Airstrips w/in 1/2 mile	Areas of Planned Timber Sales (miles)	Number of Residences w/in 500 ft	Parallel to Highway (miles)	Parks Highway Crossings	Scenic Quality B (miles)	Number of RS 2477 Trails crossed	ROS Urban (miles)	ROS Rural (miles)			ROS Roaded Natural (miles)	ROS Semi-Primitive (miles)	Net Present Value of Cost by Route (1997 \$'s)
South Route																																					
2	5	75		7			16	1				2	6				3	2	1					3			6		6		1	4				16	
4	14	102		293			3					11	14				15	1	8				4	1		8			14			12	3			24	
11	7	73		108								2	7				7		1									7			7				2		
12	12	118		76		16								11	9	3	8	1	1									2	1		12				1		
16	31	21	86	144		216	5			1	9	8		30		7	3	21			3												31				
22	27	31	48	202	4	155	12	2	1		25	20				24	1	2	4		25		1					1		2			26				
Total	96	420	134	830	4	387	36	3	1	1	34	43	26	41	9	10	27	55	6	15		28	4	5		8	6		29	1	3	27	9	57	153,102	43	
Rex/South Route																																					
2	5	75		7			16	1				2	6				3	2	1					3			6		6		1	4				16	
5	7	91		55								5	7		5		7					4						7			1	7			3		
6	7	136		26								7	7		7		7					2	2					7			7				1		
9	20	160		126		15						12	11	7	19		20					0						12	1			4	16				
16	31	21	86	144		216	5			1	9	8		30		7	3	21			3												31				
22	27	31	48	202	4	155	12	2	1		25	20				24	1	2	4		25		1					1		2			26				
Total	97	514	134	560	4	386	33	3	1	1	34	54	31	37	31	7	27	59	4	5		28	6	6			6		33	1	3	4	18	72	153,916	20	
Option B – Refinement to Rex/South (i.e., Chicken Cr. Bypass):																																					
2	5	75		7			16	1				2	6				3	2	1					3			6		6		1	4				16	
5	7	91		55								5	7		5		7					4						7			1	7			3		
6	7	136		26								7	7		7		7					2	2					7			7				1		
8	8	89		44								6	8		8		8					0						8				8					
10	7	96		32		14							7				7	1	4									8			5	3			4		
12	12	118		76		16								11	9	3	8	1	1									2	1		12				1		
16	31	21	86	144		216	5			1	9	8		30		7	3	21			3												31				
22	27	31	48	202	4	155	12	2	1		25	20				24	1	2	4		25		1					1		2			26				
Total	105	657	134	586	4	401	33	3	1	1	34	48	34	41	29	10	27	62	6	10		28	6	6			6		38	1	3	21	24	57	157,708	25	
Tatlanika Route																																					
2	5	75		7			16	1				2	6				3	2	1					3			6		6		1	4				16	
5	7	91		55								5	7		5		7					4						7			1	7			3		
7	51	324	45	571	2	349	9			2	23	9	22	28	35		4	42		1		4	2					23	1			16	35		1		
22	27	31	48	202	4	155	12	2	1		25	20				24	1	2	4		25		1					1		2			26				
Total	91	521	93	835	6	504	37	3	1	2	48	36	35	28	40		28	53	4	6		29	6	4			6		37	1	3	4	23	61	152,701	20	

Note: values have been rounded to the nearest whole number.
NA = not applicable

* Federal Jurisdiction includes BLM, State-, and Native-selected lands
** State Jurisdiction includes Mental Health Trust lands and state land that has been Native-selected.

*** Private Jurisdiction includes University of Alaska, Alaska Railroad Corporation, Native Corporation, and Borough lands

APPENDIX I

BENEFIT-COST ANALYSIS

(Insert attached Table 2-2 into this appendix)

• Table 2-2
Summary of Operation and Maintenance Costs by Alternative

Description	Unit Cost	Unit	Old Intertie Route	Option A Old Intertie Route w/ RR ROW	North Route	South Route	Rex/South Route	Option B Chicken Creek By pass	Tatlanika Route
3.1.1.1 Length	--	miles	104.7	105.3	101.5	96.1	96.9	104.9	90.8
Areas Requiring Reclearing									
Upland Forest	--	acres	1,499	1,271	1,297	593	573	716	882
Forested Wetlands	--	acres	247	435	347	387	386	401	504
Total Area Recleared	--	acres	1,746	1,706	1,644	980	959	1,117	1,386
Cleared Annually (10%)	--	acres	175	171	164	98	96	112	139
Annual Maintenance Expenses									
Aerial Patrols									
Scheduled - 2 one-way trips	\$60	mile	\$6,282	\$6,318	\$6,090	\$5,766	\$5,814	\$6,294	\$5,448
Outage - 1 two-way trip	\$60	mile	\$6,282	\$6,318	\$6,090	\$5,766	\$5,814	\$6,294	\$5,448
Subtotal			\$12,564	\$12,636	\$12,180	\$11,532	\$11,628	\$12,588	\$10,896
Expenses									
Ground Patrol	\$250	mile	\$26,175	\$26,325	\$25,375	\$24,025	\$24,225	\$26,225	\$22,700
River Crossing Lighting Maintenance	\$1	each	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Climbing Inspections - 10% of line each year	\$435	mile	\$45,545	\$45,806	\$44,153	\$41,804	\$42,152	\$45,632	\$39,498
Repairs and Replacements	\$1,000	mile	\$104,700	\$105,300	\$101,500	\$96,100	\$96,900	\$104,900	\$90,800
Other Annual Expenses									
Insurance	\$500	mile	\$52,350	\$52,650	\$50,750	\$48,050	\$48,450	\$52,450	\$45,400
Total Annual Expenses			\$242,334	\$243,717	\$234,958	\$222,511	\$224,355	\$242,795	\$210,294
Clearing									
Annually - from 6th year	\$1,600	acre	\$279,360	\$272,960	\$263,040	\$156,800	\$153,440	\$178,720	\$221,760
Maintenance of Lattice-Style Towers at River Crossings									
Every 10th year	\$6,000	All	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000

Source: Dryden & LaRue, 1997.

APPENDIX K

**MEMORANDUM OF UNDERSTANDING BETWEEN
USIBELLI COAL MINE, INC. AND GVEA**



GOLDEN VALLEY ELECTRIC ASSOCIATION INC. PO Box 71249 - Fairbanks, Alaska 99707-1249 • 907-452-1151

**Memorandum of Understanding
(MOU)**

February 26, 1998

This MOU between Usibelli Coal Mine Inc. (UCM) and Golden Valley Electric Association, Inc. (GVEA) has been prepared to address effects from the placement of the Northern Interrie across portions of the UCM lease sites. This agreement covers the basic issues, which will be expanded in further writings to form a right-of-way agreement between UCM and GVEA. Be it agreed as follows:

- 1) GVEA will provide accelerometer testing for the existing blast sites and project the future acceleration from future Two Bull Ridge blasts to provide supporting documentation for a Mining Plan Modification, and to develop a loading criteria for the transmission line foundations and structures. Golden Valley will provide assistance as needed to obtain a mine permit modification, which does not add any new constraints to current or future mining operations.
- 2) Golden Valley will promote the placement of the transmission line between Healy Power Plant and Poker Creek on the top of the bluff. The top of bluff placement is within the 1 mile study area shown in the DEIS.
- 3) GVEA will place the transmission line along the Nenana River haul road between Poker Creek and the intersection of the Nenana River haul road and the Hosceanna Creek haul road. The line route will then angle east of the Y-intersection and cross the Hosceanna Creek haul road. GVEA will move the transmission line to the east, if the transmission line causes an impediment to existing or future mining operations and facilities. UCM will attempt to minimize relocation of the line by minor adjustments in the placement of future facilities.
- 4) GVEA agrees to indemnify UCM for any damages caused to or by placement of the transmission line across the UCM Lease property.

Steve W. Denton
Vice President Engineering
Usibelli Coal Mine, Inc.

Steven Haagenson
Manager of Engineering Services
Golden Valley Electric Assn. Inc.

4.0 REVIEW AND ANALYSIS OF PUBLIC COMMENTS

4.1 INTRODUCTION

This section summarizes substantive comments received during the official public comment period on the DEIS from December 24, 1997, to March 5, 1998, in accordance with 40 CFR, Part 1503. The BLM's 60-day review period began on the day the DEIS was transmitted to the EPA (December 24, 1997). On January 6, 1998, the BLM published a notice in the Federal Register (Volume 63, Number 3) announcing the availability of the DEIS for public review and on January 16, 1998, the EPA published their notice of availability (Volume 63, Number 11).

Approximately 400 copies of the DEIS and 350 copies of the Executive Summary were mailed to interested parties. Documents and large-scale maps were also available for review at Nenana, Anderson, and Healy public libraries, the BLM, and the ADNR. The DEIS was also available for review on the Internet. A supplemental mailing was conducted on January 12, 1998, to announce the dates of the public hearings and to distribute a large-scale route alternative map.

Notices of the public hearings were published in the Fairbanks Daily News Miner; the local papers of Anderson, Healy, and Nenana; broadcast over local radio stations; and posted at community facilities. Public hearings were held in:

- Fairbanks - February 9, 1998
- Nenana - February 10, 1998
- Anderson - February 11, 1998
- Healy - February 12, 1998.

4.2 COMMENT SUMMARY

During the public comment period, various federal, state, and local agencies; businesses; organizations; and individuals provided written statements and oral testimony. NEPA requires that all comments be considered and reviewed. Responses to substantive comments must be included in the FEIS. Substantive comments are defined as comments that result in one of the following responses:

- A modification of the alternatives, including the proposed action.
- Development and evaluation of alternatives not previously given serious consideration by the Agency.
- Improvements or modification to the environmental analysis.

- Factual corrections.
- An explanation why the comment does not warrant a further agency response, including citing the source or reasons which support the agency's position and that no further response is required.

The BLM received 481 written statements, and 126 individuals testified during the public hearings. Because of the volume and similarity of comments received on the DEIS, substantive comments have been summarized by topic according to CFR 1503.4 (b). The original letters and transcripts of the public hearings are available for review at the BLM.

To develop topics and summarize comments, the following steps were followed:

- Individuals testifying at each public hearing were assigned a number (PH-1 through PH-126). Each written response was assigned also assigned a number (1-481).
- Specific comments in each letter were bracketed, numbered, and assigned to a topic.
- Responses were drafted.

The majority of comments expressed support for the Northern Intertie project with only the route selection being in question. Approximately 55 percent of the comments stating a route preference expressed support for the *Rex/South Route*, 22 percent supported a route within the existing Parks Highway/Railroad corridor, and 15 percent favored the *Chicken Creek By-Pass*. All comments were considered by the BLM and ADNR for the overall management decision; however, the comments were not regarded as a voting process. Comments on the DEIS in favor of the proposed project typically cited the following reasons:

- The DEIS presents a clear evaluation and comparison of options and provides extensive mitigation measures. A thorough assessment of the potential impacts on the Alaskan people, wildlife, and habitat for each alternative was conducted.
- Reliability and availability of electric service will improve. The second line will reduce the number of power outages, which negatively impact businesses and quality of life. Since there is insufficient generation in Fairbanks to meet demand during peak loading conditions, the loss of the existing line without an adequate source of backup power could have severe consequences.
- A reliable, economical, and adequate supply of power is necessary for economic growth of Fairbanks and to accommodate future growth. Economical energy will benefit GVEA ratepayers and those who visit and shop in the community. Competitive rates are necessary to attract new businesses.

- The Tanana Flats are already heavily used by airboats and snowmachines and access to public land should not be restricted. A significant increase in hunters along the ROW is unlikely. Generally, the closer one is to Fairbanks, the more difficult it is to gain access to the area without watercraft capability.
- Potential aviation hazards are mitigated.
- The Preferred Alternative does not encroach on private property.

The majority of substantive comments received on the DEIS focused on:

- NEPA process, including the analysis of alternatives.
- The inclusion of the *Chicken Creek By-Pass* as the Preferred Alternative.
- Impacts associated with new development in the Tanana Flats as it relates to wildlife habitat, vegetation and wetlands, access, changes to fire management, impacts to private property owners, and visual resources.

4.3 SUBSTANTIVE COMMENTS

Substantive comments were grouped into 193 topic comments, which are summarized below according to the overall issue each comment addresses.

4.3.1 NEPA Process

Comment 1: Refer to Section 3.18.1 (Summary of Cumulative Impacts), last paragraph on page 3-115. GVEA is investigating the installation of a fiber-optic cable during the construction of the Northern Intertie. The Army objects to the placement of a buried fiber optic cable on any portion of military withdrawn lands. This is an additional project with its own inherent impacts and concerns that have not been addressed in the current environmental documentation for the Northern Intertie Project. The fiber optic cable project as discussed in the DEIS for the Northern Intertie does not comply with NEPA.

Response: The proposed fiber optic cable would not be buried: it would be placed on the transmission line towers. The last paragraph of Section 3.18.1, page 3-115, has been rewritten to read "GVEA is investigating the installation of an overhead fiber-optic cable during the construction of the Northern Intertie." See Errata Sheet - Section 3.1.8.1.

Comment 2: The DEIS exaggerates the implementation of proposed mitigation. The DEIS fails to discuss the process or procedures that will be used to monitor these items. Agency responsibility for monitoring and enforcement is not assigned.

Response: The Record of Decision (ROD) must specifically identify which mitigation measures have been selected and adopted as part of the agency's action. The BLM will include a monitoring and enforcement program for the mitigating measures in the ROD. The ROD will be used to compel compliance with or execution of the mitigation measures contained in it (40 CFR 1505.2).

Comment 3: The DEIS is biased in its comparison of Alternatives.

Response: According to NEPA, an EIS must rigorously evaluate all reasonable alternatives in comparative form to provide a clear basis for choice among options. The degree of analysis devoted to each alternative must be substantially similar to that devoted to the proposed action. In accordance and in compliance with NEPA, the alternatives for the Northern Intertie Project have been analyzed to the same level of detail. Refer to Table 3.18-1 (Comparison of Alternatives) for an overview of resources impacted by alternative.

Comment 4: Need to analyze a natural gas line from Prudhoe Bay to Fairbanks as an alternative.

Response: This alternative was considered but not carried forward in Section 2.6.2 of the EIS. An EIS must specify the underlying purpose and need to which the lead agency is responding in proposing the action and alternatives. The "Purpose and Need" section of an EIS is important because it drives the selection of the range of alternatives. According to NEPA, alternatives need not be carried forward if, upon review, the alternative does not meet the expressed purpose and need of the proposed project. As a result, this alternative was not carried forward.

Comment 5: The DEIS contained no independent technical and economic analysis of alternatives to the Tanana Flats. The BLM did not obtain expert, outside expertise in the electric power industry to evaluate the alternatives proposed.

Response: The BLM recognized the professional and technical expertise of the applicant. Additionally, GVEA has retained outside electrical engineering contractors for the design of the project. Several independent reviews have been made by entities other than GVEA. These entities included: the Alaska Energy Authority; North American Electric Reliability Council; Electric Power Research Institute; and engineers from Alaska Electric Generation and Transmission, Anchorage Municipal Light & Power, Chugach Electric Association, Homer Electric Association, Institute of Electrical and Electronic Engineers, Matanuska Electric Association, Seward Electric System, and the University of Alaska Fairbanks Electrical

Engineering Department. These other entities provided input and suggested to GVEA many of the requirements needed for this project. The third party contractor, Dames & Moore & Moore, either has on staff or retained the expertise necessary to adequately assess the environmental impacts of the alternatives on all aspects of the human environment. Additionally, the professional expertise of the BLM, with input from the interagency working group, maintains oversight responsibilities for the adequacy of the analysis. The BLM and the working group has also provided site specific analysis data throughout the EIS process.

Comment 6: The DEIS fails to address whether or not, as a matter of public policy, utilities and this line should be routed in a common corridor to reduce a variety of environmental impacts.

Response: Based on a review of federal, state, borough, and local land use or land management plans, specific public policies stating that transmission lines be routed in a common utility corridor were not identified, nor were utility corridors identified. The DEIS evaluates and compares alternatives within the developed areas around the Parks Highway/Railroad ROWs and to the east in the Tanana Flats. Refer to Table 3.18-1 (Comparison of Alternatives) for an overview of environmental impacts associated with each alternative.

Comment 7: The fact that GVEA has made a business decision which states how and when it must deliver increased power to the service area circumvents the entire NEPA process.

Response: Regardless of any decisions GVEA may have made regarding power needs, the Northern Intertie project must comply with NEPA because it requires a permit, regulatory decision, and funding from a federal agency.

Comment 8: Who supplied the alternative screening criteria? Is providing a new substation at Fort Knox included in the screening criteria? Must an alternative meet all five screening criteria to be considered in the EIS?

Response: The BLM, in conjunction with other regulatory agencies, developed the screening criteria. The alternatives did not have to meet all five of the criteria to be considered in the DEIS. A new substation at Fort Knox, was not a screening criteria.

Comment 9: The DEIS fails to address valid social and environmental issues.

Response: The DEIS addresses issues brought forward by the public and agencies during the scoping process, without clarification of specific issues the BLM is unable to formulate a response.

Comment 10: What criteria were used to define wide-spread public support?

Response: An analysis of public input obtained during the scoping and alternative screening meetings identified which routes should be carried forward based on the public support criteria.

Comment 11: Section 2.5 is insufficient. Please expand to comply with NEPA's Council on Environmental Quality (CEQ) regulations.

Response: Section 2.5 is sufficient according to NEPA and the CEQ. An EIS must rigorously evaluate all reasonably feasible alternatives to the same level of detail and in comparative format. Section 2.5 and its associated Table 2-3 is a summary of the impacts associated with each alternative. Detailed analysis of each alternative is presented in Section 3.0 (Affected Environment and Effects of Alternatives).

Comment 12: The inclusion of the Denali Borough resolution does not meet criteria stated in NEPA CEQ regulation 1502.18.

Response: The inclusion of the Denali Borough resolution complies with 40 CFR 1502.18. The resolution by the Denali Borough, which includes the communities of Anderson, Healy, and Ferry, is considered under 40 CFR 1502.18 to consist of material which substantiates any analysis fundamental to the impact statement, in this case potential impacts to private property and the local economy.

Comment 13: The DEIS fails to address long-term energy planning.

Response: Section 1.2 (Project Purpose and Need) and, specifically, Section 1.2.1 (Meet Increasing Demands for Power) describe future power requirements. In addition, Appendix C contains a list of historic planning documents that demonstrate the attention paid to long-term energy planning.

Comment 14: The public process has been significantly flawed because inaccurate, incomplete, and difficult to read maps have been widely published and displayed at public comment meetings.

Response: The document and maps were released as drafts. The most current data available was collected within the route corridors and illustrated on the maps in the document and were presented to the public for comment. Additionally, large-scale versions of the maps in the DEIS were available at public meetings and in local libraries. Revised Figures 2-1, 3.9-1 (Sheets 1, 2, 6, and 8 of 8), and 3.9-2 (Sheets 1, 2, and 6 of 8) can be found in the Errata Sheet.

Comment 15: The DEIS did not adequately address looking at upgrading the existing line.

Response: Upgrading the existing line was reviewed, but for several reasons did not meet the purpose and need of the project. According to NEPA, alternatives need not be carried forward

if, upon review, the alternative does not meet the expressed purpose and need of the proposed project. Refer to Section 2.6.4 (Upgrading Existing Transmission Line) for a detailed discussion of the alternative.

Comment 16: Overall, the DEIS is inadequate to make a decision.

Response: The DEIS is adequate to make a decision. Without clarification of what is inadequate, we are unable to formulate a specific response to address this concern.

Comment 17: Include in the FEIS all individual, organization, and agency comments collected during the EA for the Northern Intertie.

Response: Comments collected during the EA are incorporated by reference and are available for review at the BLM Northern Field Office in Fairbanks in accordance with 40 CFR 1502.21.

Comment 18: The Northern Intertie planning process has not been fair and open as required by NEPA regulations and guidelines. The BLM has suppressed information about individuals who submitted comments and also significant content and contextual information. Senator Murkowski interfered politically in favor of GVEA's preferred route in an attempt to subvert the public NEPA process. The BLM announced during the scoping phase that those not returning the mail out would be removed which effectively trims interested and uninterested parties. Failure to include the railbelt communities in the scoping and public hearing loop.

Response: All information presented by individuals has been made available. BLM withheld personal information such as names and addresses due to Privacy Act considerations and a recent Supreme Court decision. At no time did the BLM contact Senator Murkowski with the intent of having the Senator intervene in this process. The public notification of this EIS process was provided throughout interior Alaska. Receipt of comments from interested parties along the Railbelt shows that public notification occurred in this area. The scoping meetings were held in the communities that were potentially impacted by the proposed and alternative routes as determined by the pre-scoping process. The BLM did not drop any names from the mailing list.

Comment 19: The BLM has put together an inadequate assessment of impacts in part because it is based strictly on short-term consequences rather than looking at the impacts in their cumulative effects over the long-term.

Response: Reasonably foreseeable consequences were evaluated according to NEPA. Also see Section 3.18.1 (Summary of Cumulative Impacts).

Comment 20: Section 3.18.2 (Unavoidable Adverse Impacts). This section is remarkably brief for a project of this size and complexity. We recommend you use figures found in the document to summarize habitat loss, the potential for bird collisions and proposed methods to

minimize them, a more enlightening description of the predicted visual impacts, and a description of changes in the recreational setting due to the construction of the preferred alternative.

Response: This section adequately summarizes unavoidable adverse impacts. Supporting documentation can be found in the appropriate sections of the DEIS.

Comment 21: Significant information was gathered at the scoping meeting that was not acted upon, which resulted in a DEIS too narrowly defined (40 CFR Part 1500).

Response: BLM diligently analyzed information from scoping meetings. Without clarification about specific concerns, we are unable to formulate a specific response to this comment.

Comment 22: Economics and expediency should not be the determining criteria driving route selection when there is a better route that minimizes the loss of wildlife and aesthetics.

Response: According to NEPA, economic impacts are required to be evaluated (40 CFR 1502.16, 1508.8). Expediency has not been a determining criteria for route selection.

Comment 23: Alternatives to transmission lines were not considered in the DEIS. There are other ways to address the problems of obtaining greater throughput and more reliable power, such as local power generation from coal, oil, or natural gas. The DEIS should contain data by which to compare the economics of transporting cheap electricity by transmission lines, versus those of local generation.

Response: Alternatives to transmission lines were considered in the DEIS. See Section 2.6 (Alternatives Considered but not Carried Forward). Cost-benefit and economic analyses were not performed on alternatives not carried forward.

Comment 24: The DEIS must not weigh impacts to scenic values and private property more highly than those to wildlife and habitat.

Response: The DEIS did not weigh one resource against another; however, the DEIS did evaluate the intensity of impacts to all resources.

Comment 25: The DEIS addressed Executive Order 12898 on Environmental Justice under which Federally assisted projects are prevented from adversely impacting low income communities at a disproportionally high rate. Residents in the Windy Creek Valley could have a prime option (tourism) for income removed with construction of the intertie along the Rex/South Route.

Response: Executive Order 12898 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" directs Federal Agencies to assess whether their actions have disproportionately high and adverse human health or environmental effects on minority and low-income communities. Throughout the EIS process, the BLM has acknowledge the potential existence of low income populations in the study area. Recognizing this, the BLM conducted scoping meetings in Healy, Anderson, Nenana, and Fairbanks. These meetings were conducted in order to provide input opportunities for these populations. The DEIS concludes that none of the routes associated with the project would disproportionately, adversely effect such populations.

Comment 26: Many construction and maintenance features do not have clear criteria for implementation. This makes it difficult for contractors to comply with the intent of the feature, and difficult for agencies to enforce.

Response: See response to Comment #2.

Comment 27: Some design features conflict. For example, the design features for clearing of the ROW that minimize visual, erosion, and access impacts conflict with design features that protect the line from fire and allow the use of the ROW as a fire break.

Response: In certain instances proposed mitigation to lessen the impact on specific resource values may to a lesser degree, impact another resource values. An example is visual resource concerns and aviation safety. The BLM has chosen to mitigate in favor of public safety even though it could cause some impacts to visual quality in certain areas. The BLM does not view this as a conflict, but instead is an effort to prioritize mitigation.

4.3.2 Purpose and Need

Comment 28: Section 1.2 gives the impression that the existing 138 kV line between Healy and Fairbanks limits the amount of less expensive Anchorage-based power available in Fairbanks. Even with the additional transmission line between Healy and Fairbanks, acquisition will be limited by the section of 138 kV line between Healy and Willow. There also appears to be a conflict between the text and Figure 1-2.

Response: The EIS correctly states that the 138 kV transmission line from Healy to Fairbanks limits the amount of available and less expensive power from Anchorage. The existing line does not have the capacity to transmit the generated power from Anchorage and transmit the power produced at Healy. With the addition of the Healy Clean Coal Plant, there is not enough transmission capacity into the Fairbanks area. Figure 1-2 shows the existing line between Healy and Willow as 69 kV and it should be shown as a 345 kV line operated at 138 kV. This is stated correctly in the text.

Comment 29: Why is the intertie required to tie into south Fairbanks at the Wilson Substation?

Response: The existing load center is located in south Fairbanks. The termination of the bulk transmission line at a system load center minimizes transfer losses and reduces the effects of line outages or other facility failures. An analysis was completed to determine the effectiveness of different system configurations and supported the need to bring the termination of the Northern Intertie to the system load center in south Fairbanks. The proposed Wilson Substation in south Fairbanks would bring power into GVEA's load center, which is roughly between Fairbanks and Fort Wainwright. Section 1.2.2 (Increase Reliability) describes why the proposed transmission line needs to tie into the proposed Wilson Substation and the load center in south Fairbanks.

Comment 30: The DEIS does not show any data supporting the argument that separate transmission lines are more reliable.

Response: DEIS Section 1.2.2 (Increase Reliability), discusses the need for two separate interties. If failure of one line should occur, the other line could supply the needed electricity. The data regarding power outage events is presented in Table 1-3.

Comment 31: The increased reliability of having two redundant lines would be virtually immeasurable.

Response: See response to Comment #30.

Comment 32: The argument that a second line would increase reliability of power is not supported in the DEIS. Table 3-1 lists power outages, but does not categorize them. The fact is only five outages during the 30-year history have been caused by the existing line. Using correct analysis, removing the existing line would reduce outages to less than 15. Power outages should be accurately portrayed and the public should be provided with the true causes of power outages. Power failures caused by switching problems at the Beluga Power Plant west of Anchorage and by breaks in the intertie south of Healy would not be corrected by anything done north of Healy. The majority of the outages are imported to us via the existing route.

Response: Power outages are accurately displayed in the DEIS in Table 1-3. Power supply outages are caused by transmission or generator trips in the system.

Comment 33: Is it possible to change the location of the battery and substation for a connection to the northern route?

Response: GVEA's load center is located in south Fairbanks and the intertie needs to tie into the load center. The northern route alternatives must also tie into the load center in south

Fairbanks, which is why the alternative routes parallel existing ROWs through Fort Knox to North Pole and finally to the load center in south Fairbanks. Refer to Section 1.2.2 (Increase Reliability) for a description of the load center. The location of the battery could change and is not a determining factor in the terminus of the intertie.

Comment 34: The DEIS does not do a good job of explaining what natural disasters may disrupt the transmission lines if co-located. The discussion of earthquake risks on pages 3-3 and 3-4 is so limited as to be useless in evaluating earthquake risk to each of the alternative routes. Weather disasters such as the September snowstorms a few years back, are likewise not addressed in section 3.2 of the DEIS.

Response: Earthquakes pose a risk to all development and inhabitants at the study area. Section 3.3.1 (Affected Environment) summarizes what is known about the probability of severe earthquakes and the proximity of the study area to known seismic faults. The snow loads were a local distribution problem and this type of event is not likely to affect the intertie. There are several natural phenomenon that could effect the intertie and these are discussed throughout Chapter 3.

Comment 35: What is the recommended distance between the lines? (Provide reference).

Response: The minimum distance between two transmission lines is 175 feet with a total ROW for both transmission lines of 250 feet. Refer to Figure 2-2 (Right-Of-Way Needs for Co-Location of Transmission Lines). Peabody - Personal communication, 1997, is the source.

Comment 36: Is the need for line separation included in the expressed purpose and need?

Response: Yes, the need for a second and separate line is addressed in the EIS. While many of the benefits would be achieved whether the transmission lines were placed together or separated, overall planning criteria for electrical reliability shows that dual paths to the point of need are preferred. One item that is dependent on line separation is discussed in Section 1.2.4 (Reduce Transmission Losses) of the DEIS.

Comment 37: Section 3.13.3 - The second sentence states that all route alternatives would create electric reliability and lower costs. The DEIS repeats this only in sentences that follow pertaining to the *South, Rex/South, and Tatlanika Routes*. This is redundant and biased because the DEIS does not reiterate this statement for the other routes.

Response: The second sentence has been reworded to read "Each of the route alternatives will also create benefits in the form of long-term electric supply reliability and lower electric costs; however, there would be a higher degree of reliability and cost savings associated with the *South, Rex/South, and Tatlanika Routes*." References under the *South, Rex/South, and Tatlanika Routes* have been deleted. See Errata Sheet - Section 3.13.3.

Comment 38: The DEIS inaccurately portrays current power capability and future needs. The justification for new power needs and for more reliable power than that which presently exist is inaccurate, incomplete, and misleading. Need reliable data, including a realistic contingency analysis of the sequence of events that might occur in the event of loss of power from the current intertie. The DEIS also fails to adequately consider long-term electricity planning for the region. Major issues to consider include: planned upgrades for the Richardson 138kV line and the Fairbanks-Healy existing 138 kV line and proposed major mines - such as Sumimoto/Tech's Pogo gold prospect.

Response: Section 1.2 (Project Purpose and Need) accurately describes the current power capability and future needs for the area. This project was applied for due to long-term planning at both the state and local levels.

Comment 39: The independent contribution of the proposed BESS must be considered independently from the rest of the project so that a fair assessment of reliability and primary contributors can be made. The No Action Alternative does not include the BESS, although the BESS could be built in any case and is not dependent upon federal permitting.

Response: This statement is correct; however, the BESS does not provide additional long-term power. Additionally, the DEIS discussed an alternative that included only the construction of the BESS (Section 2.6.5).

Comment 40: Bias is evident from the fact that the BLM has chosen only certain alternatives to consider and has uncritically accepted GVEA's criteria for purpose and need.

Response: The BLM diligently worked with the public to determine an appropriate range of alternatives for the project. This was done through the scoping meetings and again through the special alternative identification and screening meetings held prior to the DEIS.

It is incumbent upon the applicant (in this case GVEA) to submit an application to the BLM. This application requires the applicant to state and qualify their purpose and need of the project. The BLM then identifies and examines alternatives that will meet the applicant's needs, and analyzes these alternatives through the NEPA process.

Comment 41: What are the risks of running two parallel lines? How many catastrophic incidences have taken out two lines anywhere (provide data)?

Response: See response to Comment #30. We know of no information that would allow us to quantify the number of times parallel transmission lines have been taken out.

4.3.3 Alternative Analysis

Comment 42: Several commentors have suggested different alternatives for consideration in the FEIS and stated that the DEIS failed to evaluate a full range of alternatives. These alternatives ranged from completely new routes to different combinations of the segments presented in the DEIS and are listed below.

New Alternative Routes:

- *Rex Trail to Birch Lake Route* - A feasible route would run east along the Rex Trail along the northern foothills and connect to the present grid after crossing the Tanana River near Birch Lake, then north of the Little Delta River.
- *Glennallen, Fort Greely, and Richardson Highway Route* - Need to consider a Richardson Highway route from Fort Greely to Glennallen.
- *Railroad Route* - A viable option would be to place a new line in the Alaska Railroad corridor from Healy to Fairbanks.
- *Healy to Birch Lake Route* - Healy east along foothills to the Little Delta and then north to the existing line.
- Consideration should be given to a direct route between Gold Hill and the proposed South Fairbanks Substation. It could follow the current 138 kV line along the Mitchell Express Way. This would be either an existing GVEA ROW or existing highway ROW and should require no taking of private land.
- Directly east from Segment 26, north of Tanana River into south Fairbanks, selected portions of the line could be undergrounded through residential areas and the airport traffic area between the Park Highway and the terminus in South Fairbanks.

Different Segment Combinations:

- Use segments 2, 5, 6, 9, 16, 19, 23, 24, 26.
- Was any thought given to a route on the south side of the Tanana River which would go as far as the node where Segments 16, 17, and 22 come together, then cross the Tanana River to approximately where the node between Segments 23, 24, and 25 join.
- Look at a combination of the *Rex* and *North Routes*. Using Segments 2, 5, 6, 9, 16, then to 19 to cross the Tanana with Segments 23, 25, 26, 29, 30, and 31.

Response: After the NOI was issued, the BLM held scoping meetings to get input from the public regarding the issues and possible alternatives to be addressed in the DEIS. In addition to the scoping meetings, the BLM held special public meetings to help determine the reasonable range of alternatives for this project. Most, if not all, of the commentors suggesting new alternatives during the DEIS were in attendance at these meetings. We have looked at these new proposals and have determined that none of the alternatives resolve issues not already addressed by the existing range of alternatives analyzed. In fact, each proposal brings about new issues that are already resolved by the current range of alternatives. In the absence of an overwhelming response by the public, the existing range of alternatives adequately addresses all issues; therefore, these newly suggested routes will not be considered further (see Errata Sheet - Section 2.6.7).

Comment 43: Refinements to the seven routes under consideration should have been considered to reduce adverse impacts.

Response: The centerlines for the proposed alternatives were adjusted to reduce impacts. The ROW of the selected alternative will be aligned in coordination with appropriate landowners and managers, including mining and military operations, to minimize potential adverse effects. See Errata Sheet - Section 2.4.5 (Design Features Common to all Alternatives).

Comment 44: For the new Gold Hill to South Fairbanks alternative, the DEIS should contain maps showing existing GVEA lines and ROWs, tax lot boundaries, and location of residences in Fairbanks.

Response: The DEIS contains maps that show GVEA transmission lines and private property crossed by the alternatives. Tax lot boundaries would not give additional information required to make a decision on the project. See Figure 3.9-1 (Land Jurisdiction Map).

Comment 45: Why are the north routes designed to go to Fort Knox and North Pole?

Response: All alternative routes must terminate at the load center in south Fairbanks to minimize transfer losses and reduce the effects of line outages or other facility failures, refer to Section 1.2.2 (Increase Reliability). Once the northern routes reach the Gold Hill Substation, each route still needs to tie into the South Fairbanks Substation. A route directly from the Gold Hill Substation to the South Fairbanks Substation would not have been feasible as a result of sensitive residential areas. However, existing ROWs to Fort Knox and North Pole facilitate easier access to south Fairbanks.

Comment 46: Only one option is addressed for getting power from the west side of town, where the northern routes reach Fairbanks, to the proposed Wilson Substation in south Fairbanks. This strategy is common to all three northern routes and greatly reduces the costs of those routes, yet other options are only briefly discussed. There is no discussion of added

benefits from the improvement of three substations and an additional connection to the Fort Knox substation from North Pole. At the least, there should be an added reliability benefit for the Fort Knox area, should the connection from Gold Hill fail.

Response: There are limited routes available which can deliver power from the east to the west side of Fairbanks. Several alternative routes were identified during route selection for the existing 138 kV line between the Gold Hill and the Fort Wainwright Substations. Numerous portions of routes exist across Fairbanks but none of these portions connect to provide a continuous route, so they are not feasible. The connection from the North Pole Substation to the Fort Knox Substation provides the needed reliability while utilizing the existing investment already made in the transmission line.

The purpose of the loop closure from Fort Knox to North Pole was to provide a level of reliability equivalent to a system where the Northern Intertie terminates at the south side of Fairbanks. We agree that the incremental reliability benefits will accrue only to the Fort Knox gold mine should the existing transmission line between Gold Hill and the gold mine fail. Based on an average outage rate of one outage per year per 100 miles of line, a 29-mile line, a 32,000 kilowatt load, an outage duration of 12 hours, and a unserved energy value of \$2/kilowatt hour, the expected reliability benefit to the Fort Knox area would be about \$223,000/year.

Comment 47: Underground line at Goose Island and in other areas.

Response: Going under the Tanana River at Goose Island was considered. Refer to Section 2.6.3 for a detailed description of underground construction.

Comment 48: The consideration of under-grounding through residential areas is poorly addressed (Gold Hill area to the Wilson Substation).

Response: Underground construction in residential areas was considered. See Section 2.6.3.

Comment 49: Any transmission line that is built other than the existing ROW doubles the impact on aviation, wetlands, forest lands, and development of tourism.

Response: A ROW outside the existing ROW does not double environmental impacts. Each situation and resource may differ. See Table 2-3 for a summary of impacts.

Comment 50: Was the existing route not chosen specifically due to the fact that private lands were going to be impacted?

Response: Impacts to private lands were a factor in the choice of the *Rex/South Route* (with *Option B*) as the Preferred Alternative in the DEIS; however, impacts to all of the resources were considered.

Comment 51: The DEIS is biased in its comparison of route options by failing to clearly point out that the longer length of all three Northern Routes includes portions of the routes where 138 kV lines already exist (Segments 27, 28, 29, 31).

Response: Segments 27, 28, 29, and 31 will not require additional ROW and will take advantage of existing lines. Table 2-3 has been updated to reflect no impacts to the resources along these segments.

Comment 52: More detailed analysis, especially in the environmental impact section, including impacts to aviation safety, impacts from changes in fire management that will occur from the *Rex/South Route*, and a detailed analysis of the total costs, including maintenance for each alternative.

Response: This information is presented in Sections 3.15.1.1 (Aviation), 3.16 (Fire Management), 3.13.2.2 (Economic Impacts), 3.13.2.3 (Fiscal Impacts), and Appendix I (Cost Benefit Analysis).

Comment 53: Refer to the Route Alternative Map, Figure 2-1. The map showing the preferred routing of the transmission line east of Nenana to the Wood River does not identify or depict the trail cut through the trees in this area. It is important to identify this existing trail and determine the relationship of the transmission line to the trail. Is the transmission line on the north or south side of the trail? It is also important to determine if the trail can be utilized for hauling in supplies and equipment to the construction site when building the transmission line. Land jurisdiction for the trail should also be determined.

Response: This trail is shown on Figure 3-11.2 (Recreation Use Areas) and Figure 3.9-1 (Land Jurisdiction), sheet 4 of 8.

Comment 54: The DEIS inadequately assesses the value of the undeveloped character of the Tanana Flats and Alaska Range foothills. The FEIS must more fully examine the value residents, visitors, and future generations have or will have for the undeveloped character of the Tanana Flats and Alaska Range Foothills.

Response: While it is true that the BLM did not quantify the undeveloped character of the Tanana Flats or the recreational value of the project area to local residents, a qualitative impact assessment was conducted. The BLM examined the potential effects of the route alternatives in two ways: 1) by evaluating whether the route would change the existing Recreation Opportunity Spectrum class; and 2) by describing qualitatively, the effects of a transmission line on recreational activities. Both of these approaches and their results are provided in Section 3.11.2.

4.3.4 Preferred Alternative

Comment 55: This process is driven by socioeconomics. The arguments for the Preferred *Rex/South Route* stress the socioeconomic benefits and the high negative impacts using the *Old Intertie Route* would have on residential, commercial, and industrial land uses.

Response: During the scoping process, impacts to landownership and land use were identified as significant issues. An EIS must focus on the significant environmental impacts and impacts should be discussed in proportion to their significance [1502.2(b)]. Also see responses to Comments #115 through #133.

Comment 56: How and why did BLM select the Preferred Alternative? Section 2.3 is very vague. What is the justification for selection the *Chicken Creek By-Pass*. It:

- Adds 8 miles of construction.
- Increases environmental impacts (See Table 3.18-1).
- Adds \$4 million to the cost. Added cost is unwarranted. Who pays for it?
- Increases aviation hazard (Constricted corridor and two way traffic).
- Puts line too close to the existing line.
- Fails to achieve any significant benefit over a shorter route.

Response: The BLM identified the *Chicken Creek By-Pass (Option B)* as the preferred alternative in the DEIS to facilitate public comment of the proposal. Selection of this alternative as the preferred alternative was based on impacts relating to the issues, and the alternatives considered. The preferred alternative identified in the DEIS is not the final decision of the lead agency. The BLM's preferred alternative has been changed to the *Rex-South Route* in the FEIS. When the final decision is made and documented in the ROD, the rationale for the decision will be provided at that time.

Comment 57: The Preferred Route (*Chicken Creek By-Pass*) deviates from our proposed option presented at the initial meetings with Windy Creek residents.

Response: The Windy Creek residents provided an alternative route segment at the public scoping and screening criteria meetings. Based on a review of the route segment by engineers and the other public members for route feasibility, minor changes were made to the route.

Comment 58: The *Rex/South Route* with *Option B* is the Preferred Route for one reason; it the cheapest of all the alternatives.

Response: The Preferred Route as stated in the Northern Intertie Project DEIS identifies the *Rex/South Route* with *Option B - Chicken Creek By-Pass* (\$157.7 million). The costs to build the preferred route are not the least expensive. If the preferred route was chosen solely on

costs, the *Tatlanika Route* would be chosen as it has the lowest cost of any route (\$152.7 million). Refer to Table ES-1.

Comment 59: Exclusion of the *Chicken Creek By-Pass* should be done on environmental grounds not economic grounds because this is an EIS.

Response: The DEIS focused on environmental issues, as well as socioeconomic factors. Socioeconomic factors are required in an EIS. See response to Comments #21 and #24.

4.3.5 Access

Comment 60: Increased access to military and private property along the ROW corridor is not adequately discussed.

Response: Potential impacts resulting from increased access are discussed in Sections 3.9.1.5 and 3.9.2.1. Mitigation is discussed in Section 2.4.6.

Comment 61: While recognizing trespass as a problem, the DEIS does not attempt to mitigate the problem. The DEIS must provide a plan to mitigate public trespass and disruptive land use along any new proposed utility easement.

Response: It is recognized that trespass is a potential concern and mitigating measures were developed to reduce these impacts. Refer to Section 2.4 (Proposed Action) for a description of the construction, access, and clearing methods to be used for the project. It is not required or appropriate for an EIS to contain a specific trespass abatement plan.

Comment 62: A road brings with it many environmental impacts that cannot be ignored in an EIS. While the intertie serviced by the road will remain unchanged the road system will grow.

Response: GVEA will be required to use existing roads to the extent practicable. A new road along the length of the intertie will not be permitted.

Comment 63: It is clear a transportation corridor will exist through the black spruce habitat for bears and humans. An easy transportation corridor could be avoided by placing a barrier on the ROW. This has not been suggested, please remove referenced statement (Section 3.6.2.3 para. 4).

Response: Use of the transmission line ROW for access to remote areas will be discouraged by leaving brush within the ROW. All trees will be felled and left in place to create barriers and discourage easy access. See Section 2.4.5, numbers 10 and 12. The BLM feels that Section 3.6.2.3 is correct and have chosen to leave paragraph 4 of this section as is.

Comment 64: What is meant by maintaining natural vegetation? It is unclear how maintaining natural vegetation will limit winter travel by snowmachine along the ROW. If access is going to be minimized, how will this be accomplished?

Response: See response to Comments #61 and #63.

Comment 65: Discuss the impacts to the environment of increased access and increased recreation use in each alternative.

Response: See response to Comment #60.

Comment 66: Where is the location of currently inaccessible areas referenced in Section 3.18.1? Include this information in the effected environmental sections.

Response: The inaccessible areas reference in Section 3.18.1 include any area that cannot be accessed by road or trail at this time. This information is already incorporated into the environmental sections.

4.3.6 Biological Resources

Comment 67: The DEIS inadequately considers impacts from construction, inspection, and maintenance-particularly destruction of vegetation cover and the use of helicopters.

Response: The DEIS does adequately consider the impacts of clearing vegetation, which is the primary impact of construction. Inspections and maintenance of the line will involve a small amount of clearing of vegetation over 10 feet in height, but little if any vegetative cover would be disturbed. Helicopters used for maintenance can land either under the lines in areas of cleared ROW or in open areas, such as muskegs adjacent to the ROW.

Comment 68: The DEIS does not mitigate negative impacts to furbearers, traplines, trumpeter swans, private lands in the flats, or engineering problems with building towers on floating organic material.

Response: The proposed transmission line corridor will only affect a relatively small amount of habitat in any particular area. With minimal clearing of trees and shrubs beneath the lines, no adverse impact to furbearers is anticipated. Towers will be sited to minimize placement in floating organic material. The transmission line will primarily be suspended over these areas. Therefore, no mitigation would be required.

Comment 69: The DEIS does not adequately address serious issues of game management, aircraft safety, and the visual consequences of clearing a wide swath for towers. The ROW will allow easier access and travel by predators of large game species such as caribou and moose.

Response: See response to Comments #104, #105, and #172.

Comment 70: Mitigation measures identified in the DEIS seem to be thorough; construction of the Northern Intertie should not cause direct significant negative impacts, however, unforeseen indirect negative impacts to the Tanana Flats are of concern.

Response: See response to Comments #19 and #20.

Comment 71: Disrupting an extensive pristine area is a major issue. The FEIS must recognize the value people place on protecting high quality natural ecosystems.

Response: The DEIS, addressed the issues the public identified as important to the natural ecosystems.

Comment 72: In paragraph 3.6.1, a Section 7 Consultation is listed as Appendix D. It is Appendix E.

Response: This correction has been made (see Errata Sheet - Section 3.6.1).

Comment 73: Table 2-2 - Section 7 consultation under the Endangered Species Act is not triggered by the presence of Bald or Golden Eagles.

Response: The phrase "and Bald Eagles or Golden Eagles" has been struck (see Errata Sheet - Section 2.4.7). Formal consultation with the U.S. Fish and Wildlife Service (USFWS) is required under Section 7 of the Endangered Species Act for federal projects where such actions could directly or indirectly affect any proposed or listed species. Consultation is triggered by the presence of the American Peregrine Falcon in the study area. USFWS has concluded that the preferred alternative will not likely adversely effect American Peregrine Falcons (see September 17, 1997 letter, DEIS Appendix E).

Comment 74: Refer to Section 2.4.6 (Selectively Committed Mitigation Measures). Mitigation measure 10 is needed; however, the USFWS objects to the statement, "Any additional monitoring will be the responsibility of the concerned agency," and requested that it be deleted.

Response: GVEA will be required to support a 3-year monitoring study. Representatives of the Interagency Work Group decided that 3 years of monitoring is what would be needed to analyze the effects of the line and the mitigation. It was further agreed that any additional study would be the responsibility of the concerned agency. The USFWS was a member of this working group.

Comment 75: Refer to Section 2.4.6 (Selectively Committed Mitigation Measures). Replace mitigation measure 10 in the document with the following: "GVEA will be responsible for

funding post construction monitoring studies on selected portions of the transmission line to evaluate waterfowl collision mortality. A Plan will be submitted to BLM, USFWS, Alaska Department of Fish and Game (ADF&G), and the Army for review and approval prior to field monitoring. During the required 3-year monitoring period, GVEA and the participating agencies will evaluate the study and determine the need for the implementation of additional measures to reduce bird strikes."

Response: The language of Mitigation Measure 10 of the DEIS will remain unchanged. The BLM, with assistance from the interagency working group, will develop the monitoring plan.

Comment 76: Refer to Table 3.6-1. This table presents data only from the Tanana Flats on Fort Wainwright lands south of the Tanana River. Trumpeter swan data from the Tatlanika and Totatlanika Rivers in the western Tanana Flats should also be included in this table.

Response: Table 3.6-1 has been revised (see Errata Sheet) and presents productivity data collected on the Tanana Flats and includes data on the Tatlanika and Totatlanika Rivers by the USFWS and the Army from aerial surveys of Fairbanks Quadrangles B1-4 and C1-4. These data are intended to represent recent data for the Tanana Flats region. Two additional surveys of the flats (1996 and 1997) have been added to the table.

Comment 77: The Natural Resources Office of Fort Wainwright has been conducting annual surveys of trumpeter swan productivity on the Tanana Flats for the last 20 years. This information is not included in the analysis.

Response: The productivity of Trumpeter Swans over the last 20 years, including the Fort Wainwright information, was used in the analysis of impacts of the proposed alternative routes.

Comment 78: Page 3-23 lists several species, such as scoters, Canvasbacks, and Barrow's Goldeneyes, as being common in the area. This is not true. Likewise, Tundra Swans are uncommon. A common breeder, the Canada Goose has been ignored. The Flats are particularly important for Pintail and Widgeon. Much of the Flats are at least as productive (on an acre-by-acre basis) as the most productive areas of the Minto Flats.

Response: The sentence reads that both dabbling ducks and diving ducks are common on the flats. The Scoters, Canvasbacks, Barrow's Goldeneyes, and Tundra Swans are not specifically listed as "common" or "uncommon" but simply that these species occur on the flats either during nesting or migration, and have been recorded on waterfowl surveys by the USFWS.

The Canada Goose is a common migrant and breeder in the flats and this addition has been made (see Errata Sheet - Section 3.6.1.2).

Portions of the Tanana flats may be as productive as areas in the Minto Flats on an acre-by-acre basis, but the overall importance of Minto Flats to waterfowl is much greater due to the amount of available habitat located there.

Comment 79: Section 3.6.2.2 (Birds) pages 3-31 and 3-32. The first paragraph of this section states that overall impacts to regional bird populations are not expected due to the availability of undisturbed habitat and minimal clearing of shrubs under 10 feet tall in the ROW. This paragraph does not fully support that conclusion.

Response: The sentence accurately states that the removal of tall vegetation in a linear corridor only 150 feet wide (300 feet in thick black spruce) would not be expected to impact bird populations in the vast expanses of habitat in the Tanana Valley.

Comment 80: Section 3.6.2.2 (Birds). This section needs to utilize a study of bird migrations near Tok and a smaller study conducted at Eielson AFB.

Response: These studies are reports on migration flight behavior, not transmission line collision studies. This information may be valuable for comparison with results of the 3-year monitoring study of bird collision along the Northern Intertie. The literature on avian collisions was reviewed and reported on in the text in Section 3.6.2.2 (pages 3-32 through 3-34) and it is stated in the text that passerines and waterfowl are occasionally killed by transmission lines. It is also stated that there are large number of birds flying through the study area during migration and there is a potential for collision mortality under certain conditions. The post-construction monitoring study would be able to determine the extent of the problem in specific areas.

Comment 81: Section 3.6.2.2 (Birds - Waterfowl, Cranes, and Swans), Page 3-34, third paragraph. What is the citation for the statement that biological effects of collision mortalities at the population level are generally negligible for most waterfowl species? In this same paragraph, what is meant by "mortality...is not expected to be biologically significant"?

Response: The citation for this sentence is Kroodsma, 1978; Faanes 1987, and APLIC, 1994. These citations were included in the Errata Sheet - Section 3.6.2.2.

What is meant by biological significance is, *"The mortality level resulting from bird collisions with the transmission line is not expected to effect the bird population's ability to sustain or increase it's numbers, locally and throughout its range"* (APLIC, 1994).

Comment 82: Section 3.6.2.2 (Birds - Summary). This paragraph needs to summarize the results of your analysis of the potential for this project to impact birds, namely habitat loss, disturbance caused by construction and operation of the proposed line, and the potential for collisions.

Response: A statement was added (see Errata Sheet) to indicate that there is some potential for collision mortality for all route segments. Areas which pose a particular hazard have not been identified, but will be evaluated during a 3-year collision study after construction of the line.

Comment 83: The DEIS does not attempt to quantify the risk of bird strikes and the implications of those strikes to the population.

Response: The lack of quantitative data on avian mortality from transmission lines in this area or in similar areas of Alaska makes it impractical to speculate as to the effects of any potential mortality on bird populations in the area. Avian collision rates are highly dependent on the specific characteristics of each location and it is very difficult to extrapolate from one area to the next.

Comment 84: Figure 3.6-2 implies that Segment 22 lies north of waterfowl nesting areas. This is wrong. Many ducks, at relatively high densities, use the wetlands all the way to the Tanana River, including all of Segment 22.

Response: Figure 3.6-2 represents Trumpeter Swan nesting areas, Segment 22 avoids major Trumpeter Swan nesting areas.

Comment 85: A 3-year monitoring period for bird collision accidents at a dangerous wire installation, within a major migration route, is completely inadequate. At least a 25-year monitoring period is needed to understand the effect on the resource.

Response: After extensive consultation with the agencies it was determined that a 3-year monitoring program would indicate if there is a problem with the transmission line in certain areas and specific mitigation can then be applied in these areas to reduce the impact of the line.

Comment 86: Section 3.5.2 (Effects of Alternatives - Vegetation and Wetlands). The overlapping discussion of wetlands and vegetation is confusing.

Response: The separate discussion of vegetation and wetlands is due to the regulatory status of wetlands that requires that it be addressed separately.

Comment 87: Refer to Section 3.5.2.2 (Wetlands), page 3-16 paragraph 7. Hyrdoxing impacts wetlands by changing the habitat and potentially altering the rate of permafrost degradation.

Response: The clearing of trees in forested wetlands changes the habitat from forest to a shrub community. Many wetland types would not be cleared to any great degree and only the forested wetlands of thick black spruce would be cleared to the ground. Dwarf tree and shrub communities would not be cleared; only individual trees would be taken down. See Errata Sheet

- Section 3.5.2.2, third paragraph. The increase in the active layer (depth of thaw) after clearing is discussed in Section 3.5.3 (Summary), fourth paragraph.

Comment 88: Table 3.5-3 (Acreage for Wetland Type by Route), page 3-17. The total wetland acreage for the *Rex/South Route* does not correspond with figures found in Table 3.5-1.

Response: The number for total wetlands for the *Rex/South Route* is correct in Table 3.5-3. Table 3.5-1 has been corrected to read - 1,245 acres (see Errata Sheet - Section 3.5.2.2).

Comment 89: The DEIS inadequately assesses the impact of the *Rex/South Route* on wetlands. The DEIS fails to offer mitigation suggestions for the predicted wetlands impacts and does not acknowledge that unanticipated impacts might result from construction in these areas which are largely unknown and unpredictable. If a separate route is chosen for the Northern Intertie, additional wetlands to those already affected along the old route will be impacted.

Response: Vegetation clearing and winter construction for setting tower foundations are important design features and mitigation measures designed to minimize wetland and vegetation impacts. Refer to Sections 2.4.5 and 2.4.6, respectively. Unanticipated impacts are simply impacts that are not expected. Throughout this EIS, every effort has been made to identify potential impacts and develop methods to minimize them.

Foundations for towers in wetlands and in permafrost areas have been engineered successfully in other areas of Alaska. The DEIS has indicated that thawing of warm permafrost could occur in areas adjacent to the floating mat wetlands and that groundwater seepage from the foundations is possible in some areas.

Overall, the project's direct impact to wetland relates to the loss of vegetation in areas cleared, which is mitigated to some extent by minimal clearing in the ROW. In the wettest areas, such as floating mat wetland or freshwater marshes, there will be little if any clearing due the low stature of the vegetation.

Comment 90: Explain why all trees greater than 10 feet tall pose a threat to the proposed transmission line should they fall.

Response: The statement in the text refers to the clearance needed for the potential swing or sag in the conductor and potential fire flame heights.

Comment 91: Design Feature 3 is unclear. Definition of term dense is unclear.

Response: Dense is a general term and a judgement call that will be made by a representative of the ADNR or BLM, depending on the land status.

Comment 92: What will the level of clearing be along the ROW?

Response: All trees and tall shrubs over 10 feet in height will be cut to ground level within 75 feet of the centerline of the ROW (150 feet total), all other vegetation will be left intact. In areas of dense black spruce, trees will be cleared to a distance of 150 feet on either side of the ROW (300 feet total) for increased fire protection. Tracked vehicles traveling down the ROW during construction will create an access trail through the ROW, although snow cover will protect some of the low-growing shrubs and ground cover. Open areas will be used to the extent possible for moving tracked vehicles through the ROW during construction.

Comment 93: What effect will the corridor have on dispersion of cattail on the flats? (There was concern on the Tanana Flats that cattails were invading and displacing more productive species).

Response: There is no indication that clearing of tall trees in the ROW will have any affect on the invasion or increase in the cover of cattails on the Tanana Flats.

Comment 94: Table 3.4-1 does not appear to correctly list anadromous streams. It should include the northern portion of Clear, Willow, Crooked, and Tatlanika Creeks, as well as others.

Response: None of the Alternative Routes cross Clear Creek. The ADF&G does not classify Willow, Crooked, and Tatlanika Creeks as Anadromous Fish Streams.

Comment 95: Section 3.6.1 (Affected Environment - Wildlife and Habitat), page 3-21, paragraph 1 - Why is State management the only land management directive mentioned in this paragraph?

Response: The reference is to lands managed for wildlife. Military lands on Fort Wainwright are not primarily managed for wildlife.

Comment 96: The preferred alternative will cross the lower reaches of nearly every significant tributary of the Tanana River between Fairbanks and Nenana.

Response: The line will span all of these streams with no entry into the streams themselves and there will be a vegetation buffer zone on each side of the streams. Although these streams would be crossed by the *Rex/South (Option B)* and the *Tatlanika Routes*, neither of the fish populations nor the hydrology of the steams would be adversely impacted by the construction of or presence of the line.

Comment 97: There is no description of the amount of ROW clearing along the access corridor/ice road used for construction. Nor is it clear whether use of the corridor for maintenance will be allowed. Including diagrams of the ROW would be helpful.

Response: If the trees or shrubs in the ROW under 10 feet tall are too thick to allow movement of tracked vehicles down the ROW, some clearing may be necessary. However, this is difficult to predict since construction will occur during snow cover and a meandering trail will be used to minimize the need to clear vegetation along the ROW. Small trees and shrubs will likely be driven over where necessary. Use of open areas in the ROW will also minimize additional damage to vegetation. The winter trail may be used during the winter to conduct some maintenance, but this would depend on the location of the trail along the ROW.

Comment 98: The description of the amount of ROW clearing for the *Rex/South Route* in no way resembles what is shown in Figure 3.5-2. The text indicates that clearing of the route lying north of the foothills would be minimal; however, the figure indicates nearly all of the section would require maximum clearing.

Response: Figure 3.5-2 legend has been changed to correctly indicate the meaning of maximum and minimum (see Errata Sheet - Section 3.5): Maximum - clearing would occur in most all of the ROW width, Minor - light or patching clearing would be required.

Comment 99: Figure 3.5-2 suggests maximum clearing predominates for all routes north of the foothills. If maximum clearing means a 300-foot ROW, and Figure 3.5-2 is accurate, the document is misleading in the frequent references to 150-foot ROW with minimal clearing.

Response: Minimal and maximum was not intended to refer to 150 feet versus 300 feet. It refers to the degree of forest or tall vegetation that will likely be cleared in the ROW. See response to Comment #98.

Comment 100: There is no discussion of the impacts to the proposed National Natural Landmark that was being considered for parts of the floating bog wetlands on the Tanana Flats where Segment 22 will cross.

Response: There is no formal proposal to include this area under The National Natural Landmark system.

Comment 101: Page 3-7. The Chena River is 154 miles long, not 140.

Response: According to "*Alaska Regional Profiles: Yukon Region*," the Chena River is 141 miles in length (see Errata Sheet).

Comment 102: Page 3-21. The Chena River could have included more complete listing of fish species, of which there are 13. It probably should be described as one of the finest grayling fisheries in the world.

Response: Only the most common fish species have been listed. The degree of risk to the fisheries in the Chena River from the Northern Intertie spanning this river is extremely low, which dictates the level of detail necessary in the Affected Environment section.

Comment 103: The DEIS inadequately assesses the impact of the *Rex/South Route* on moose. *Option B* would transect more winter habitat for this species than all other alternatives. Game populations would be threatened by increased access by hunters and their machines that the transmission line ROW would provide. Where military lands are crossed, the line will open countless wetlands and meadows to off-road vehicles. Increased restrictions to hunting activities are likely as a result of improved access and hunter efficiency that will occur with the line corridor placed in the planned location. The proposed route runs directly through the areas of highest moose concentrations.

Response: Impacts to moose populations and moose hunting areas are discussed in Section 3.6.2.3. Direct impacts to moose will relate to modification of habitat within the ROW and are expected to be very minimal, if not beneficial, in many areas.

Page 3-39, fourth paragraph. Indirect impacts to moose relate to increased access for hunters and recreational users. Any increased access for moose hunters along the routes could result in increased harvest, but this would likely not be dramatic. These areas are hunted extensively now and there is an increasing trend which will likely continue even without the transmission line.

On Fort Wainwright, most of the terrain is wetland and will require only limited clearing. Cut trees will be left in the ROW, which will inhibit travel within the ROW. The winter ice road created for construction will not greatly increase summer access to these areas, because wet terrain is impassable for most off-road vehicles. In areas of open wetlands, no trails will be left after winter construction. Access to the areas during winter by snowmachine would not be expected to change, since most the area is already extensively used.

Comment 104: There is no discussion on how the ROW might improve the predatory advantage of wolves.

Response: The minimal clearing in the ROW (only trees over 10 feet removed) with no access roads is not expected to provide wolves with a new advantage over their prey species. Existing snowmachine trails throughout the flats in winter presently provide hard-packed trails that wolves can use to prey on moose and other species.

Comment 105: The loss of wildlife values associated with construction of the high-powered transmission line is not fully evaluated in the DEIS. The greatest loss of productivity of wildlife habitat from the GVEA Intertie (not allowing fires to burn) would be on those routes that

traverse the high wildlife habitat value areas of the Tanana Flats and along the *Rex/South Route* adjacent to the Tanana River.

Response: Wildlife values were one of the several criteria evaluated in the selection of the preferred alternative. A considerable amount of effort was focused on minimizing the loss of wildlife values on routes through the Tanana flats through the route selection process, beginning with the original macrocorridor study. The routes following the Parks Highway corridor were sited with less emphasis on wildlife values, but it was still a factor (i.e., Peregrine Falcons). The location of the preferred alternative, the *Rex/South Route*, south of the Tanana River represents a compromise between wildlife values in the center of the flats (high-value moose habitat and Trumpeter Swan nesting habitat) and the Peregrine Falcon habitat along the Tanana River. The selection of this alternative as the preferred route reflects several criteria, wildlife values being one but not the only criteria. The avoidance of areas with high wildlife values and minimizing impacts to wildlife values was incorporated into all of the alternative routes. Minimizing the extent of ROW clearing through the flats was also evaluated and selected as a means of mitigating the impacts to wildlife values.

With reference to fire protection, fires will only be fought in those areas that currently require it. Fires will be permitted to burn through the ROW in many areas, so little change, if any, is expected to wildlife productivity as a result of the transmission line. For more information concerning fire protection, see responses to Comments #178, #180, #181, and #183.

Comment 106: Provide a discussion of the impacts to wildlife from the firebreak created by the ROW in Sections 3.5.2 and 3.6.2.

Response: Impacts to wildlife from using the transmission line ROW as a firebreak would generally be beneficial, assuming that fire is essential for the maintenance of wildlife habitat on the flats. The ROW could be used to create a backburn fire to protect areas along the Parks Highway and allow large fires to burn up to this firebreak. It could also be used to protect Native Allotments located near the transmission line. This would allow large fires to burn which otherwise would have to be aggressively fought to protect the highway, railroad, existing intertie, Native Allotments, and inhabited areas along the road. The result would be greater opportunities for large acreage fires, thereby improving moose habitat on the flats. See also response to Comment #178.

Comment 107: What is the existing level of trapping in the region? What impact will the intertie have on trapping?

Response: The Northern Intertie Project will have very little impact on trapping (see response to Comment #68). For that reason, a detailed review of historic and current trapping levels was not considered necessary for this DEIS.

Impacts to furbearer populations would not be expected from the construction and operation of the transmission line and, therefore, no mitigation would be required. However, potential indirect impacts to some trappers and their trap lines could occur from increased access to certain areas for recreational snowmachiners. Traps set adjacent to the trail or traps set directly in the trail could be inadvertently disturbed and, thus, interfere with trapping success. This potential conflict is somewhat mitigated by leaving buffers of trees and shrubs along watercourses to prevent use of the ROW for access into new areas not presently used by snowmachiners.

Comment 108: Figure 3.6-3 is misleading. Black bear use all of the lands south and some of the lands north of the Tanana River. All of segment 22 is important black bear habitat.

Response: Figure 3.6-3 refers to black bear denning areas, not general use areas.

Comment 109: Figure 3.6-5 is inaccurate in that it exaggerates the extent of high use moose calving areas.

Response: The data were obtained from ADF&G and was developed from aerial surveys. Moose calving occurs to some degree in all areas of the Tanana Flats, with the eastern portion of the flats exhibiting higher calving densities.

Comment 110: The discussion of lynx is too limited. Should this species ever be listed as a threatened or endangered species, it would have a significant impact to this project.

Response: Lynx populations reflect the abundance of their prey species and there is no indication that the relatively small amount of habitat clearing would impact lynx. There are no present plans to list the Alaskan populations of this species under the Endanger Species Act. Population levels are currently high enough to permit commercial trapping in the project area.

Comment 111: Suggest changing inspection by helicopter to March and late October. Helicopter inspection in September will impact moose in rut, moose hunters, and other September recreational users of the Tanana Flats.

Response: Timing of maintenance and inspection flights could be revised. Discussions between the GVEA, BLM, and the ADF&G can be scheduled to finalize timing of helicopter maintenance flights. This schedule need not be addressed in this EIS. Rather, it can be listed as a stipulation in the permits granting GVEA access to state and federal lands.

Comment 112: Increased numbers of moose hunters could result in reduced numbers of bull moose. The female segment of the population would remain unaffected (page 3-39). Any restrictions implemented to prevent over-harvest of moose would likely be permanent. The

references that imply that the restrictions would be in place until the population "recovers" are erroneous.

Response: It is inferred, not stated, that only bull moose are harvested; however, a lowering of the bull/cow ratio would have an affect on the entire population. This statement has been added to the Errata Sheet - Section 3.6.2.3.

Any restrictive measures put in place to minimize harvest to bring the population back to a specific population level can be reversed under the same authority under which it is imposed. All regulations put in place by the Alaska Board of Game are subject to change, and frequently do change following receipt of new information or a change in public policy.

Comment 113 The design features that mitigate impacts to wildlife suggest that only emergency repairs will be conducted along ROW Sections 7 and 16 from April 15 to July 15. Section 22 is of similar importance to wildlife and should be restricted as well.

Response: These restrictions also apply to Segment 22 and this has been changed in the Errata Sheet.

Comment 114: Routine annual inspection flights of the line are scheduled for September and March. Depending on the intensity of the inspections, it might be best to schedule the autumn flight after big game seasons close in late September to reduce conflicts with hunters.

Response: See response to Comment #111.

4.3.7 Land Use

Comment 115: Segment 30 of the *North Route* (Section 3 and 4 T1S, R2E). The section immediately south of where the Chena River crosses University land (known as the Drury Gift) was conveyed with title restrictions which limit the University's ability to sell easements or cut trees. The agreement with the donor stated that the University would maintain the property in good faith, including prevention of encroachment of power lines. This may create a practical limitation on the University's ability to cooperate with GVEA on granting an easement through this property.

Response: Information provided has been added to land use analysis section (see Errata Sheet - Section 3.9.2.2).

Comment 116: Section 33, T9S, R8W (Segment 4 of the *South Route*) is owned entirely by the University. The proposed line cuts through the northeast corner of this section and essentially subdivides the property.

Response: Figure 3.9-1 has been updated to reflect University ownership of these lands (see Errata Sheet).

Comment 117: Refer to Section 3.9.2.2 (Land Use Impacts by Route), third paragraph. Additionally, Segment 22 crosses the Larry Drop Zone, a parachute-landing zone. Proposed routing of this segment may limit use of the landing zone. The ROW would have to be located at least 0.75 miles from the boundary of the landing zone to ensure jumper safety. A letter dated November 3, 1997, and signed by LTC Hickman from the U.S. Army Training Office requested that the transmission line be relocated at least 0.75 miles from the drop zone so that training use is not lost. The enlarged maps still show the powerline running through the drop zone. The Army desires to have the transmission line sited on the north side of the drop zone closer to the Tanana River.

Response: We are working with design engineers and the Army regarding this issue. This concern will be accommodated if at all possible.

Comment 118: Refer to Section 3.10.1.1 (Methodology) second paragraph. The majority of the lands in the study area are owned by the state and the Department of Defense for military purposes. The BLM manages the land used by the military for non-military purposes with the concurrence of the Department of Defense. Replace the two sentences above with the following: "The majority of the lands in the study area are administered by the State and the Department of Defense. The BLM has oversight responsibilities and co-manages military controlled lands for certain non-military purposes with the concurrence of the Department of Defense."

Response: Text updated in Errata Sheet - Section 3.10.1.1.

Comment 119: The DEIS seriously underestimated the disruption, difficulty, delay, and cost of acquiring additional ROW in the highway/railroad corridor.

Response: ROW acquisition costs are presented in Table 3.13-6 (Summary of Project Costs) by Alternative (net present value in thousands of 1997 dollars). The average cost of ROW acquisition of the routes falling within the highway/railroad corridor is \$2,240,000. The average cost of ROW acquisition in routes that cross the Tanana Flats is \$475,750. These costs do not include indirect costs associated with potential court challenges.

Comment 120: How many new parcels of private property are impacted by the northern routes? What is the number of newly affected residences within 500 feet?

Response: The northern routes (*Old Intertie, Option A - Railroad ROW, and North Routes*) would all require an additional 150 feet of ROW adjacent to (west of) the existing ROW. Therefore, all impacts to private parcels would be considered new. The number of private

parcels crossed by the northern routes are 224, 194 and 132, respectively. The number of residences within 500 feet are 322 (*Old Intertie Route*), 243 (*Option A - Railroad ROW Route*), and 100 (*North Route*).

Comment 121: Land Use maps do not show existing homes, buildings, and cabins in Windy Creek Area.

Response: Land use data were collected within a study area approximately 1 mile on either side of the assumed centerlines of each of the routing alternatives. Many of the Windy Creek area homes, buildings, and cabins fall outside of this study area. Two residences lie approximately 1.5 miles from east side of Segment 11, another residence lies approximately 2.75 miles west of Segment 9 and 2.75 miles east of Segment 11 on Windy Creek. The alternatives would not impact the residential use of these properties. Please refer to sections 3.10, 3.11, 3.12, 3.13, and 3.15 for discussion of effects of alternatives on visual and recreational resources, tourism, socioeconomic resources, and human health and safety, respectively.

Comment 122: Land Jurisdiction maps do not show private property accurately (Windy Creek).

Response: Figure 3.9-1 (Land Jurisdiction Map - Sheet 2 of 8) has been updated (see Errata Sheet).

Comment 123: Landowners who received title to land in the Windy Creek area have a contract stating where utilities may be located and implicitly stating where utilities cannot be located. The state of Alaska reserved utility ROWs along section lines.

Response: ROWs and easements are not limited to existing reservations. ROWs and easements that would utilize lands not already reserved would be acquired under 49 CFR Part 24: Uniform Relocation Assistance and Real Property Acquisition Regulations for Federal and Federally assisted programs.

Comment 124: At what distance from the centerline will residences be fully condemned?

Response: General practice would be to acquire all residential dwellings which fall within the ROW, typically 75 feet each side of the centerline.

Comment 125: The DEIS should be clarified. It should say these are the parcels it crosses; these are the parcels that would be impacted by the expected ROW of 250 feet; and these are the houses that perhaps are impacted by something wider.

Response: Data presented in Table 3.18-1 indicates the number of miles crossing private property and the number of private parcels crossed by the expected ROW (See Errata Sheet - Section 3.18.1).

Comment 126: Expand the existing ROW to the west to avoid private property, 95% of private property could be avoided.

Response: The *Old Intertie Route* follows to the west and north of the existing 138 kV transmission line and would require an additional 150 feet of ROW along the length of the route. Approximately 224 private parcels are located within a 150-foot ROW along this route.

Comment 127: The DEIS exaggerates the impact on property owners by counting all properties within 1,000 feet. The EIS should count only those properties that would be needed to expand the ROW. Would adverse impacts on these properties be compensated?

Response: Table 3.9-2 (Existing and Planned Land Use Crossed by Alternative) counts the number of private parcels within 500 feet, 250 feet on either side of the proposed route centerlines. The number of private parcels crossed counts only those private parcels crossed by the expected ROW. Transmission line easements and/or access easements would be required on private property. See response to Comments #120 and #124.

Comment 128: The DEIS exaggerates the impacts to private property along the existing intertie route. The DEIS gives no justification for approximately tripling the distance needed from centerline for line placement, and offers no analysis of this situation with respect to whether a slight route adjustments could alleviate the need to take private property.

Response: See response to Comments #124 and #127. Minor route adjustments within the study ROW for each alternative can occur to avoid or minimize impacts to property owners.

Comment 129: Refer to "Mayor Envisions Goose Island Park," Anchorage Daily News, January 18, 1998. The preferred route of the power lines passes over Goose Island. Has anyone addressed the compatibility of the transmission line and the Mayor's proposed Goose Island Park?

Response: The proposed Tanana Lakes Park will be a large, water-based recreational park located between the Tanana Levee and Goose Island. The overall size of the proposed park is approximately 400 acres, of which 150 to 200 acres is open water. The park is meant to service the Fairbanks community and provide for both active motorized and passive non-motorized uses. GVEA and the FNSB have coordinated the location of the powerline crossing at Goose Island. The transmission line will be placed adjacent to the Goose Island causeway.

Comment 130: Figure 3.9-1 (Land Jurisdiction Map - Sheet 1 of 8). The extent of the Mental Health Trust Land Office lands in Townships 11 and 12 south is not accurate. Coal leases existing prior to the settlement in those townships are excluded from the Trust.

Response: Figure 3.9-1 (Land Jurisdiction Map - Sheet 1 of 8) has been updated (see Errata Sheet - Figure 3.9-1).

Comment 131: Figure 3.9-2 (Land Use Map - Sheet 1 of 8). Lands involved in coal mining activities are significantly understated, including the extent of existing coal leases, the existing coal haul road right-of-way and the support facilities at the mouth of Hoseanna Creek.

Response: Figure 3.9-2 (Land Use Map - Sheet 1 of 8) has been updated (see Errata Sheet - Figure 3.9-2).

Comment 132: There is a residential subdivision located in the NE $\frac{1}{4}$ of Section 1, T12S, R8W. The East $\frac{1}{2}$ of Section 18, T12S, R7W has been subdivided for either residential or commercial land use. The entire portion adjacent to the existing intertie is residential land use.

Response: Figure 3.9-2 (Land Use Map - Sheet 1 of 8) has been updated (see Errata Sheet - Figure 3.9-2).

Comment 133: Page 3-58, Table 3.9-2. The *South, Rex/South* and *Tatlanika Routes* show 1 to 4 miles of each route crossing mining land use. These routes cross, or are adjacent to, 4 to 6 miles of active UCM coal mining areas alone. This section also needs to discuss the potential impacts to coal mining operations.

Response: Text has been updated (see Errata Sheet).

4.3.8 Visual Resources

Comment 134: Refer to Figure 3.10.1. The map places the Tanana River corridor into the high sensitive viewer area. However, the proposed transmission line route immediately to the south of the corridor was omitted. The intensive recreational use of the Tanana Flats in the proposed transmission line route warrants that this area also be placed in the high sensitive viewer area.

Response: Please refer to Section 3.10.1.1 that describes the methods we used in evaluating potential visual impacts as a result of the proposed Northern Intertie. For this EIS we utilized the BLM Visual Resource Management (VRM) Manual. The manual provided a standardized approach for designating sensitive viewer areas and for evaluating potential impacts on those areas as a result of the project. The placement of a transmission line corridor in the Tanana Flats area, in and by itself, does not define a high sensitive viewer area. Refer to page 3-62 for a description of sensitive viewpoints.

Comment 135: Refer to Section 2.10 (Visual Resources) and 3.11 (Recreational Resources). A common but crucial factor important to all these sections is the significance of this land for aesthetic and recreational value. We have consistently commented that this subject should

have received more emphasis than it was afforded throughout the process. Our comment on this remains unchanged.

Response: Because the BLM is the lead agency for this EIS, the BLM's established methodology for evaluating visual resources was implemented. The analysis presented in Sections 3.10 and 3.11 present the results.

Comment 136: The DEIS inadequately assesses the impact of the *Rex/South Route* on scenic views. Despite assurances, a power line in the *Rex/South Route* will be visually obtrusive to many. The DEIS fails to explain the criteria used in evaluating impacts on aesthetic/scenic values.

Response: Impacts to visual resources were evaluated using BLM guidelines. In certain locations the transmission line will likely be visible even with mitigation measures implemented. It was not stated that the proposed transmission line would be unseen. With the proposed mitigation measures, it is unlikely that the transmission line will be obtrusive to high sensitive viewers as defined on page 3-66 of the DEIS. The DEIS fully explains the methodology used for the visual resources inventory in Section 3.10.1.1 (Methodology) and the methodology of the alternatives analysis in Section 3.10.2 (Effects of Alternatives).

Comment 137: The selected alternative will negatively impact the Alaska Range and Tanana Flats viewshed, especially from the Parks Highway.

Response: The proposed transmission line may be visible from the Parks Highway; however, as a result of distance and duration of view, it would not dominate the viewshed. In many instances, the views would be too distant to be apparent to the casual observer.

Comment 138: The *Rex/South Route* will obstruct views in Windy Creek area.

Response: The transmission line will be visible from some of the Windy Creek areas. However, as a result of the distance from residences and the proposed mitigation measures, visual impacts will be minimized.

Comment 139: The evaluation of aesthetic values does not apply standards accepted throughout North America in relevant technical literature. These values are not projected into the future. It is clearly evident that an expanse of undeveloped wilderness adjacent to Fairbanks can only increase in aesthetic value in the future, in contrast to declining aesthetic values along a transportation corridor which will continue to be a focus for development activities in the future.

Response: Visual resource guidelines used for the Northern Intertie visual resources study were developed by the BLM (Visual Resource Management Manual Section 8411 - Upland Visual

Resource Inventory and Evaluation). These guidelines are accepted as standard methodology for the agency and all of the lands they manage. Policy, procedures, and methodology are developed at the national level. This methodology formed the basis for developing consistent methodology for the visual resource inventory and assessing the visual impacts of the proposed alternatives.

Standard visual resource methodology does not project visual values into the future. Rather, the methodology and compliance with NEPA requires the inventory of the existing visual resources and impact assessment of the proposed action and the alternatives. Visual impacts from future projects are discussed in cumulative impacts (refer to Section 3.18.1, Summary of Cumulative Impacts).

Comment 140: Evaluation criteria for determining aesthetic values relative to scenic values and wild land values are not spelled out in the DEIS.

Response: The BLM Visual Resource Management Manual (Section 8411 - Upland Visual Resource Inventory and Evaluation) methodology does incorporate and assess values of landscape types. Please refer to Section 3.10.1.1 (Methodology) and the methodology of the alternatives analysis in Section 3.10.2 (Effects of Alternatives).

Comment 141: The BLM decision on its preferred alternative indicates that little or no value was placed on the beauty of that area (Tanana Flats).

Response: The scenic values of this area are of great importance to the BLM. Mitigation was developed to lessen and/or eliminate impacts to these values.

Comment 142: What is the significance of the appearance of a power line alongside million-dollar hotel complexes, tourist cabins, and restaurants? The visual impact of power lines in the backcountry would be much more disturbing.

Response: The Parks Highway is regarded as a scenic travel route and is considered a high sensitivity viewpoint. The Alaska Railroad, which generally parallels the highway, provides similar views, and is also considered a high sensitivity viewpoint. Residences and communities within the study area corridors are regarded as high sensitivity viewpoints. The Tanana and Wood Rivers and portions of the Nenana River would also be considered as high sensitive viewpoints from recreation users traveling on the waterway corridors. Other viewpoints, such as those of recreational users dispersed throughout the study area are considered moderate sensitivity (refer to Appendix G for Visual Resource Data Tables). Please refer to Figure 3.10-1 for an illustration of high sensitive view locations.

Comment 143: Inadequate consideration is given to visual impacts of the *Rex/South Route* where it crossed Goof Dome. Skylining will be unavoidable and this area is visible from the Parks Highway (Mile 287).

Response: Visual resources were consistently analyzed for the entire project area using the methods described in the BLM VRM manual. When the selected route is surveyed in, modifications will be made, if possible, to minimize visual impacts from the transmission line.

Comment 144: Section 3.10.3 (Visual Resources - Summary). This summary fails to discuss which routes pose the greatest threat to viewsheds in general and to the most sensitive viewpoints specifically.

Response: The summary on page 3-71 sufficiently concludes impacts to sensitive viewers. More detailed discussion on the potential effects of the Northern Intertie project on each route is provided in Section 3.10.2 (Effects of Alternatives).

4.3.9 Recreational Resources

Comment 145: Refer to Figure 3.11.2 (Recreational Use Areas Map) and legend. The legend that is pink shows winter snowmobiling/Summer airboating area. Delete the pink area in the Army's Alpha Impact Area. Recreation is not permitted in the impact area.

Response: It is understood that recreation is not allowed in the Alpha Impact Area; however, the map does show areas of recreation use. Personal communications during the course of the preparation of the DEIS identified this area as a location that many people go to recreate, regardless of intended or permitted use by managing agencies. Map legends have been changed to depict unauthorized recreational use. See Errata Sheet - Figures 3-11.2 and 3-11.3.

Comment 146: Refer to Figure 3.11.3 - Delete blue color on Alpha Impact Area. Public recreation is not authorized in Army Impact Areas.

Response: See response to Comment #145.

Comment 147: Refer to Section 3.11.2 (Effects of Alternatives), paragraph 4. Hunting, trapping, skiing, hiking, and other uses are dispersed throughout the Tanana Flats and are not likely to be substantially impacted by the line. We feel that this is an unrealistic expectation. Utility easements typically become wilderness byways for outdoor recreational users because they are perceived by the public to be ROWs. The newly created road or trail would be expected to attract recreational users. What we do not know is the numbers of recreationalists and types of vehicles that will use the new trail. However, from such a large number of recreational users in Fairbanks and the strong affinity to go south into the Tanana Flats, it would be expected that the recreational users on the new trail would be substantial.

Response: Existing roads and trails will be used during construction wherever possible. No permanent access will be constructed on the Tanana Flats and no new access roads will be built. Use of the transmission line ROW for access to remote areas will be discouraged by leaving brush within the ROW whenever possible. For these reasons, we expect that recreational users would continue to use areas of natural clearing and established trail/water systems for access. It is stated in Section 3.11.2 that the Northern Intertie Project will not limit or restrict access to commonly used recreation sites, or increase the number of people accessing the project area.

Comment 148: The *Rex/South Route* will adversely affect recreational use of the Rex Dome/Windy Creek area and open access of this area to moose hunters.

Response: There are already several existing trails in the Rex Dome/Windy Creek area and these trails will be used during construction and maintenance of the transmission line. No new access roads are planned for this project (see response to Comment #60).

4.3.10 Tourism

Comment 149: A transmission line through Windy Creek area would negatively impact tourism businesses.

Response: Portions of the *Rex/South Route* (Segments 7 and 9) are located further east into the Alaska Range away from the Parks Highway corridor where fewer homes are located, and more semi-primitive recreation activities occur. These segments, especially Segment 9 which is located east of the Windy Creek area, could negatively impact eco-tourism activities if the goal of the activity is to provide a primitive recreation experience. By routing the line away from the Parks Highway, the line would have little to no impact on tourist activities that currently occur along the highway and railway.

Comment 150: Inadequate data collection from eco-tourism businesses. Calls were done in September (hunting season) and there was no follow-up.

Response: While this informal phone survey was an important tool for gathering information, it was not the only source of information used in the DEIS. Information was collected from June 1997 to March 1998 through the public input process, contacts with Alaska Wilderness Recreation and Tourism Association (AWRTA), and the Fairbanks Visitors Bureau.

4.3.11 Socioeconomic/Benefit-Cost Analysis

Comment 151: Segment 30 of the *North Route* would have a significant adverse impact on the value of the lots it would cross in the Wrangell Subdivision (near North Pole) and would devalue the adjacent lots, potentially devaluing the entire subdivision.

Response: Pages 3-49, 3-52, and 3-53 have been updated to reflect potential impacts to the university lands in the North Pole area (see Errata Sheet - Section 3.9.2.2).

Comment 152: Include discussion explaining methods used to determine ROW acquisition cost estimates in the referenced tables.

Response: The estimates do not include the acquisition of any improvements or relocation assistance costs for persons displaced by the project. The acquisition costs are payments that would be made to property owners for easements over their properties. They are estimated at 100 percent of fee value for industrial and forest lands; 50 percent for commercial, residential, and mining lands; and 25 percent of fee for rural and agricultural lands.

Comment 153: The DEIS fails to address the long-term cost of the proposed project and only considers immediate cost of construction and maintenance.

Response: The methodology of benefit-cost analysis requires that the analysis address the benefits and costs over the anticipated life of the project. The Northern Intertie Project has an expected life of 50 years and the analysis extends through 2050. The annual costs for the 50-year period are presented as single numbers by using the net present value technique. Costs or benefits that extend beyond 2050 are not captured in this analysis, but the 50-year period extends well beyond an immediate term.

Comment 154: What would be the cost to the average household or the additional cost per kilowatt hour be if the existing corridor was used.

Response: Using 1997 data on average residential consumption by month and the additional cost of \$0.0046/kilowatt hour, the increased cost to the average residential customer would be about \$41 per year. This is an approximate 3.8 percent increase above the annual cost that would be incurred with the *Rex/South Route*. See Errata Sheet - Section 3.13.2.4.

Comment 155: Cost of constructing a power line in a new ROW will be more expensive than using an existing ROW.

Response: Table 3.13-6, page 3-99, presents a summary of project costs by alternative. The cost of constructing and maintaining the transmission line along the existing intertie route for the life of the project was estimated to cost approximately \$188 million, compared to \$157 million if the line were built along the preferred alternative route; a difference of over \$30 million. The difference can be largely explained by the need to build an additional 25 miles of line, acquire more private property, and to build and upgrade more substations when following the existing intertie route.

Comment 156: What specific information was used to calculate operation and maintenance costs for each alternative? What are the annual estimates for helicopter use in providing operation and maintenance for each alternative?

Response: Annual operation and maintenance costs were prepared by Dryden & LaRue Consulting Engineers and provided to Northern Economics (Peabody - Personal communication, 1997). A new table (see Errata Sheet - Table 2-2, Appendix I) presents additional detail on the operation and maintenance costs, including annual estimates for an aerial patrol (helicopter) for each alternative (estimated at \$11,000 to \$13,000 annually).

Comment 157: Provide information by alternative on the financial impact of the proposed Northern Intertie on the Fairbanks helicopter industry.

Response: Table 2-2, Appendix I, included in the response to Comment #156 provides information by alternative on the annual financial expenditures for helicopter services by GVEA in support of the proposed intertie. However, it is possible that the helicopter services supplier will not be located in Fairbanks, in which case there would be no financial impact on the Fairbanks helicopter industry.

Comment 158: The DEIS should include a comparison of cost for using an underground cable crossing for those routes crossing the Tanana River.

Response: Section 2.6.3 presents information on the feasibility of total or partial underground construction. It has been determined that horizontal drilling is a relatively new technology in Alaska. Many questions exist on whether such methods are feasible under the Tanana River. Given this uncertainty, and the likely environmental impacts, this option was not considered feasible for the Northern Intertie Project and not carried forward in the DEIS.

Comment 159: The DEIS inadequately reviews the issues related to financing a new intertie.

Response: Funding of this project will come from a variety of sources. The State of Alaska has committed funds to pay for 50 percent of the construction cost of the project. The balance of funds will likely come from RUS loans, capital construction bonds, and other sources.

Comment 160: The DEIS inadequately considers the long-term cost of fire suppression, helicopter maintenance of a remote line, and lost public values.

Response: The effect of the proposed transmission line on the long-term cost of fire suppression was discussed with the responsible agencies. Information presented in Section 3.16 of the EIS represents the views of these agencies regarding the affect of the transmission line on fire suppression activities. In no case is the line expected to increase fire suppression costs.

See the response to Comment #157 for information on helicopter maintenance of transmission lines. Note that aerial and ground patrol maintenance is required for all alternatives. The difference in cost between the alternatives is a function of length of the proposed alternative and not the degree of remoteness.

Impacts to public values such as recreation opportunities, intrusions on scenic quality, and values associated with remote areas were discussed in Sections 3.10 and 3.11 of the DEIS. The DEIS also presents impacts on public values associated with an increase in power supply and the increased reliability of the electrical system for the greater Fairbanks area, and the Railbelt as a whole (Sections 1.2 and 3.13).

Comment 161: The DEIS fails to adequately examine how financial compensation for easements and acquisition may benefit communities and property owners along the route.

Response: No benefits are expected to accrue to private property owners as a result of property acquisition for a transmission line easement. Only when absolutely necessary, will private property be acquired. In these instances, the property will be appraised to determine fair market value. The property owner will be fairly compensated for his or her loss; there will be no net gain to the owner as a result of the acquisition.

Comment 162: The section related to socioeconomic issues seemed to be inadequate. No mention is made of the effect on the culture of people living in Fairbanks. The Tanana Flats is an important subsistence hunting area for urban hunters.

Response: Section 3.13 contains information that describes the FNSB, the City of Fairbanks, and other communities in the project area. The information tells us that the Fairbanks community at-large is very diverse, which is reflected in its economy and growth. Section 3.8 presents information on subsistence use of natural resources.

Comment 163: There was no attempt to quantify lost tourist related business, or the economic effects of reduced hunting and recreation.

Response: We did not try to quantify the potential economic impacts of the proposed transmission line on tourism-related or recreational opportunities. Refer to Section 3.11 (Recreational Resources) for a description of potential project impacts on recreation opportunities and Section 3.12 for a description of impacts to tourism.

Comment 164: The DEIS does a poor job in trying to quantify the hidden costs of disturbing the area (Tanana Flats).

Response: We have interpreted the phrase "hidden costs" as meaning the indirect impact of the construction and operation of the transmission line on the environment. We have been

unable to identify any hidden costs associated with this project. Increased public access to the flats, disturbance of upland vegetation and wetlands, increased wildlife harvests, etc., were all identified during scoping as issues and have been examined as fully as possible in this EIS. Where potential impacts have been identified, they have been categorized as "direct impacts" of the project.

Comment 165: Environmental and social benefits and costs are not included in the DEIS. By reserving public lands for the Intertie and incurring the impacts that are predicted to wildlife, wetlands, scenic, and aesthetic values, the project actually "takes" public lands and dedicates them to an industrial use.

Response: Issuance of ROW is not a taking of public lands but is instead a recognized and legitimate use provided for in both federal and state regulations.

Comment 166: Cost/benefit ratios in the DEIS contain errors and are difficult to understand.

Response: The cost/benefit analysis has been reviewed by other economists to determine if there are errors in the completed work. None have been identified to date, although changes to the analysis were made to incorporate recent information on ROW costs. Cost/benefit analysis is a technical subject that may be difficult to understand.

Comment 167: Section 2.0. One element missing from the comparison of alternatives is a brief explanation of the costs and benefits. Cost figures provided in Table 2-3 are not adequate and the Cost/Benefit Analysis provided in Appendix I is difficult to comprehend.

Response: Table 2-3 is a summary table that contains information presented elsewhere in the DEIS showing the estimated cost for each route alternative. The cost/benefit information is presented in several tables in Section 3.13.2.4, specifically Table 3.13-7.

Comment 168: The DEIS inadequately assesses the costs and benefits of the proposed Northern Intertie. The cost/benefit analysis fails to present likely short- and long-term costs of each route alternative or to present benefits and benefit/cost relationships in any cogent manner. Benefit estimates are particularly troublesome because data used are taken from previous studies which are either out of date, or were conducted for another purpose, or for just part of the Northern Intertie project like the BESS.

Response: An extensive cost/benefit analysis was conducted as part of this EIS (Appendix I). We agree that, although the use of the wealth of prior studies does provide very helpful information, caution should be exercised when using dated assumptions in making cost-benefit calculations. For this reason, we relied most heavily on the BESS Study (EPRI, 1997) and additional information obtained from GVEA to generate estimates of potential cost and benefits of this project. The earlier estimates provided a useful point of reference for comparative

purposes. Overall, we found our estimates to be comparable to those produced earlier (AEA, 1991).

Comment 169: The *Chicken Creek By-Pass* would have significant adverse impact on the marketing allure of the remote quality of the Windy Hills Subdivision.

Response: The area is categorized as rural, roaded natural, or semi-primitive (see Section 3.11.2 and Figure 3.11-3). Placement of the transmission line in this area is not expected to change these categories. Impacts to private property (which includes University-owned lands) is presented in Section 3.9.2.2 of the DEIS. Figure 3.9-1 (Land Jurisdiction) has been updated.

4.3.12 Aviation

Comment 170: We feel that routing of the transmission line between Healy and Nenana should be as close as is practical to the Parks Highway. Doing this will minimize to the greatest extent any potential conflicts and safety hazards to military aircraft operating in the vicinity of the Tanana Flats.

Response: Based on extensive coordination with the military, military aviation concerns have been addressed and mitigated.

Comment 171: A flight corridor from ground level to 3,000 feet was established as part of the Air Force Military Operation Area (MOA) EIS. The Goose Island crossing contradicts this.

Response: The proposed Goose Island crossing does not lie within any existing or proposed MOA.

Comment 172: The DEIS is deficient in its description of hazards to aviation and aviators.

Response: The hazards to aviation are discussed in Sections 3.15.1.1 and 3.15.2.1. Specific mitigation measures were developed to reduce hazards and can be found in Section 2.4.6.

Comment 173: Air safety conflicts with the proposed Goose Island crossing include its close proximity to the flight paths of helicopters inbound to Fairbanks Memorial Hospital and military night training courses.

Response: Based on input from the aviation community, specific aviation mitigation measures were developed. Design features on the transmission line towers include using high visibility devices on the Tanana and Nenana River crossings, notifying pilots about the new intertie, updating FAA maps, and using aerial marker spheres as appropriate. Towers at the Tanana River crossing will be painted red and white and marked with strobe lights. Also see response to Comment #172.

Comment 174: The Proposed Power transmission line would be a general aviation hazard if located near future airfield approaches and traffic patterns, such as a plan that has been drafted to construct an airfield (DEC, 1980) on private property in Windy Creek area.

Response: Any new airfields would need to consider the presence of the line in their design to ensure aviation safety. See section 2.4.5, No. 21, page 2-14. Handouts notifying the general aviation public of the presence of the new intertie would be made available in all flight service stations and fixed base operators at airports throughout the state. These handouts will be supplied for a 2-year period.

Comment 175: The DEIS states that the line will be as visible as possible to aid pilots, then states that it will make towers and lines as invisible as possible a contradictory statement.

Response: See section 3.15.2.1, page 3-108. Transmission lines crossing major rivers will be marked with reflectors. The towers and lines need to be visible in specific areas where there could potentially be problems, such as the main river crossing at the Tanana and Nenana Rivers. However, in other areas, dulled metal finishes will be used on other towers and wires to create less of a visual impact to recreational uses or local residents along the line.

In certain instances the BLM has mitigated for impacts on a resource, knowing that this mitigation would, to a lesser degree, impact another resource. An example is visual resource concerns and aviation safety. The BLM chose to mitigate in favor of public safety, even though it could cause some impacts to visual quality in certain areas. The BLM does not view this as a contradiction, but instead as an effort to prioritize mitigation.

Comment 176: In one location, near Fairbanks, the implementation plans for reducing aviation hazards are clear. The south side of the line will be well marked. However, our pilots expressed the opinion that the north side of the line should be marked as well.

Response: Section 2.4.1.4, page 2-11 states that the towers at the Tanana River crossing will be painted red and white and marked with strobe lights, which indicates that both sides of the Tanana River crossing will be marked for aviation safety concerns. Additionally, the highest obstacle encountered when flying north into Fairbanks is the towers. Flying south out of Fairbanks, trees that are higher than the towers, will be encountered first.

4.3.13 Fire Management

Comment 177: Refer to Section 3.16 (Fire Management), first paragraph on page 3-109. "Within the study area, fire management on military lands is handled by the BLM Alaska Fire Service." This sentence is misleading as to the role of the BLM Alaska Fire Service on military lands in Fort Wainwright. Replace the above sentence to reflect the following: "The U.S. Army Alaska has a cooperative Agreement with the BLM Alaska Fire Service to manage and suppress

wild land and forest fires on the Fort Wainwright Military Reservation. The Army provides the BLM with the use of buildings for office and housing and use of the Fort Wainwright Army Airfield for the Alaska Fire Service operations in exchange for providing fire suppression on Army lands. Larger fires with suppression costs may require Army reimbursement."

Response: This paragraph has been revised (see Errata Sheet - Section 3.16.1).

Comment 178: Mitigation Measure 12 leaves the reader wondering what is meant, since the purpose of the intertie project does not relate to fire management.

Response: Fire management agencies could notice a positive benefit by using the project ROW as a firebreak. However, this measure was developed to ensure that wild or prescribed fires could pass under the transmission line and fire protection would not be required of the agencies.

Comment 179: Fire suppression requirements are not adequately addressed.

Response: Fire management has been addressed in the DEIS, refer to section 3.16.1. The ADNR, Division of Forestry, and the ADF&G, Division of Wildlife Conservation, have reviewed the information in the DEIS and found the inventory and effects of the alternatives adequately addressed.

Comment 180: Any Intertie through the flats is going to restrict the options for adequate fire management of wildlife and habitats there.

Response: Operation of the transmission line is not expected to result in any changes in fire protection management options within the study area. The ADNR, Division of Forestry and BLM Alaska Fire Service, will continue to follow the Alaska Fire Management Plan developed in 1985 and make adjustments to the fire management options as they deem appropriate.

Comment 181: Fire Protection levels are inaccurate in the DEIS. Provide a map depicting current and proposed fire protection levels.

Response: Fire Protection levels in the DEIS have been revised (see Errata Sheet - Section 3.1.6.1). A map depicting current and proposed fire protection levels has not been provided because these maps change frequently.

Comment 182: The ADF&G had promoted decreased fire suppression within the corridor area. The proposed intertie route would undoubtedly require fire suppression to protect the power line.

Response: Refer to response to Comments #179 and #180.

Comment 183: What are the impacts to the proposed ADF&G prescribed burn project on the Tanana Flats?

Response: The proposed ADF&G prescribed burn project would not be affected by the presence of the transmission line on the flats.

Comment 184: The EIS should not be considered complete until it specifically states that, in the event GVEA requests action to protect the line from wildfire, the cost of any suppression action will be paid by GVEA.

Response: Text has been added to the EIS (see Errata Sheet - Section 2.4.5).

4.3.14 Other

Comment 185: Public opinion has been sampled using an internet web survey. Include survey results in the FEIS.

Response: The public opinion survey is not included in the FEIS. It does not provide substantive comments on the project. It is available for review at the BLM, along with other comments received on the DEIS.

Comment 186: How will GVEA build and service such a line?

Response: See Sections 2.4.1 and 2.4.2 of the DEIS.

Comment 187: Include the Operation and Maintenance Plan as an Appendix.

Response: An Operation and Maintenance Plan has not been completed. The Operation and Maintenance Plan is developed after the FEIS and ROD have been completed and is specific to the alternative chosen in the ROD.

Comment 188: Refer to Section 2.4.5 (Design Features Common to all Alternatives). Add the following design feature to this section. "All routine operations and maintenance and emergency work performed by GVEA or its contractors must be coordinated with the responsible land manager(s) on a case-by-case basis prior to initiating or performing the work. Larger scale projects will require an Action Plan to be prepared and presented to the appropriate land manager(s) for review and approval prior to the work being initiated and completed."

Response: This would not be a design feature common to all alternatives. It will be addressed in the ROD and/or ROW stipulations.

Comment 189: Page 2-5, Section 2.2.5 – Segment 2 describes the route as following the UCM access road. The road is somewhat more than an access road; it is an 80-foot wide haul road designed to haul coal to the GVEA power plant in up to 240 ton haul trucks.

Response: Access road has been changed to haul road (see Errata Sheet - Section 2.2.5).

Comment 190: The DEIS should include a "Selectively Committed Mitigation Measure" to mandate construction and operation of the intertie on existing coal leases that indemnifies the coal lessee and does not interfere with coal mining and support operations on the lease(s).

Response: GVEA and Usibelli Coal Mine have met to resolve and minimize all effects on present and future mining operations. Refer to the Memorandum of Understanding between Usibelli Coal Mine, Inc. and GVEA (see Errata Sheet - Appendix K).

Comment 191: The DEIS should include a "Selectively Committed Mitigation Measure" which requires GVEA to provide existing coal mine operators with cost and engineering assistance as necessary to obtain appropriate waivers and permit modifications for blasting near the intertie.

Response: See response to Comment #190.

Comment 192: Table 2-2 has four state agency approvals missing from the list. ROWs will be required from the Mental Health Trust Land Office (TLO) and the Alaska Railroad Corporation (ARRC). The Alaska Division of Mining and Water Management is the land manager for coal leases and their approval will be required for sections of the intertie crossing State coal leases. The Division of Mining and Water Management will also need to approve a mining permit modification to change fly rock and ground vibration standards.

Response: Table 2-2 has been updated (see Errata Sheet - Section 2.4.7).

Comment 193: Page 3-87, Section 3.13.1.4 (Healy). The UCM was founded in 1943, not 1918, as stated in the first paragraph. Coal mining in the Healy area commenced in 1918.

Response: Text has been updated (see Errata Sheet - Section 3.13.1.4).

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